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Inservice Education for Staff in Integrated Preschool Settings.

University — Université

UNIVERSITY OF ALBERTA

Degree for which thesis was presented — Grade pour lequel cette thèse fut présentée

M.Ed

Year this degree conferred — Année d'obtention de ce grade

1983

Name of Supervisor — Nom du directeur de thèse

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Inservice Education for Staff in Integrated Preschool Settings

by

Nancy Carol Grigg

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF Master of Education

Department of Educational Psychology

EDMONTON, ALBERTA

FALL, 1983

THE UNIVERSITY OF ALBERTA

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Abstract

The study investigated the effects of two inservice modules presented to staff who are currently integrating handicapped children in Early Childhood Services (kindergarten) programs. Repeated observations of the classroom behavior of the handicapped students, staff and nonhandicapped peers were conducted in order to measure the impact of the training modules. A multiple baseline across subjects design was employed to facilitate the evaluation of treatment effects.

The objective of the first inservice module was to develop staff competencies in the use of selected ecological teaching strategies. The analysis of the observational data gathered over the seventeen-week period indicated that, generally, the training of staff in the ecological teaching strategies resulted in significant changes in the staff and child behavior as well as in the interactions and conversations occurring between them. However, it was noted that some of the subjects under investigation demonstrated minimal levels of treatment effect. While the characteristics of the research design preclude the possibility of making definitive statements concerning treatment effects, some tentative suggestions concerning potentially relevent variables are presented.

The second training module focused on training staff in the utilization of the nonhandicapped peers as therapeutic agents to facilitate social and communicative interactions between the handicapped children and their nonhandicapped peers in the classroom setting. The visual analysis of the treatment effects indicated that there was a significant degree of variability in the individual responses to treatment across subjectss. While approximately half of the subject demonstrated very positive effects as the result of treatment, the remaining subjects did not show a reliable change in behavior following the introduction of the peer mediated strategies. Again, suggestions are made concerning potentially relevant mediating variables.

Acknowledgements

Many people have contributed to the preparation and completion of this thesis. In particular, I would like to express my gratitude to my advisor, Dr. Gerard M. Kysela, for providing the opportunity to participate in this research project, and for his continued support, encouragement and guidance. I shall be forever indebted.

Appreciation is also extended Dr. Richard Sobsey and Dr. Gary Holdgrapher, for their interest and valuable feedback.

The ECS coordinators, teachers and aides who gave so generously of their time and talents during this study deserve my warmest thank you.

I would like to recognise the contribution of the observers, Allison MacKinnon, Lois Stiging, Linda Steubing and Russell Grigg, who performed "above and beyond the call of duty." Thanks also to Barbara Hill, for her assistance in coping with the resulting avalanche of data.

My gratitude is extended to Kathy Hunt, for her invaluable assistance in typing and editing this document, and particularily for her amazing ability to meet impossible deadlines.

Finally, I would like to acknowledge the very special debt owed to my parents, who have never doubted my ability to finish what I started, although I sometimes have doubted myself. For the encouragement, faith and love that has supported me throughout, I know of no adequate way to express my gratitude and love.

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I. Introduction

A. The Problem

The integration of young handicapped children into "regular" preschool programs with their normally developing age-mates has been an increasingly popular educational alternative in the last decade, as evidenced both by the rapid expansion in the number of programs offered (Ackerman & Moore, 1976) and the increased attention directed towards the topic in the professional literature. The rationale for this significant shift in the provision of educational services for the young handicapped child is based upon a complex set of philosophical and ideological issues, as well as numerous assumptions concerning the positive effects of these programs, not only for the handicapped child and his/her parents, but for the normally-developing peers and their parents, the school personnel and eventually, the community at large (Bricker, 1978). However, a review of available literature dealing with integration at a preschool level reveals that, to a large extent, these purported benefits remain as undocumented assumptions. In fact, it is clear that the implementation of preschool integration is well in advance of any systematic attempts at evaluating the efficacy of such programs. (Blacher-Dixon, Leonard, & Turnbull, 1981; Guralnick, 1981).

Despite the ambiguous nature of the literature dealing with the efficacy of integrated preschool programs, it is possible to delineate some consistent findings. Most importantly, it is increasingly apparent that despite claims to the contrary (Wolfensberger, 1972), the successful integration of a handicapped child into a regular preschool program is a very complex process. In fact, it is clearly recognised that the mere physical placement of handicapped children in regular settings does not lead to the fulfillment of all of the objectives of integration (Snyder, Apolloni, & Cooke, 1977).

As a result, an increasing number of researchers have attempted to delineate the components which facilitate the successful integration of the handicapped (Guralnick, 1978; Kysela & Barros, 1983). One factor which appears to have a major impact on program quality is the skills and competencies of the instructional staff. In fact, Bricker and Sandall (1979) have stated that the critical difference between programs which have successfully integrated handicapped children and those which have not can be attributed to

the instructional staff's confidence and competence in working with the handicapped.

However, it is also apparent that the trend towards the integration of handicapped children into regular classrooms has created a wide discrepancy between the roles which school staff have been trained to fill and the roles with which they are now confronted (Madle, 1982). Further, given the rapidly expanding number of integrated programs (Ackerman & Moore, 1983) as well as lower rates of teacher attrition (Browder, 1983), the traditional reliance on preservice education to adequately prepare necessary staff for newly created positions is clearly insufficient. Therefore, it would appear that there is a critical need for systematic, comprehensive inservice training which would train staff in the specific skills necessary to maximize the positive impact of the integration process (Kysela & Barros, 1983).

B. Statement of the Problem

This study sought to investigate the impact of two inservice training modules on the integration process in several kindergarten classrooms, which are referred to in Alberta as Early Childhood Services (E.C.S.) programs. Based on a review of the literature, and preliminary investigations of existing programs in Alberta (Kysela & Barros, 1983), two specific dimensions have been targeted as training objectives, as they are believed to be crucial aspects contributing to the successful integration of handicapped children in E.C.S. programs. More specifically, the objective of the first training module was to develop staff competencies in the use of selected ecological teaching strategies (MacDonald, 1982), as a means for promoting the development of communicative skills of the handicapped students. Examples of the strategies presented to the staff would include turntaking, the maintenance of interactions and conversations through the use of imitation, signaling and prompting, as well as how to assess and match the communicative mode of the student. Repeated observations of staff–child interactions in the classroom setting were conducted in order to evaluate the impact of the training module on both staff and child behavior.

The second training module focused on training staff in the utilization of the nonhandicapped peers as therapeutic agents to facilitate social and communicative interactions between the handicapped children and their nonhandicapped peers in the

classroom setting. Again, repeated observations of adult–child and child–child interaction s were conducted in order to evaluate the impact of the training module.

C. Scope and Limitations of the Study

In this investigation, instructional staff from 7 urban and rural E.C.S. (kindergarten) programs which were integrating handicapped children agreed to participate in the two inservice training sessions. Each program was funded by the Early Childhood Services division of the Alberta Department of Education, and therefore met the conditions for approval established by the province. The programs were staffed by one certified E.C.S. teacher and at least one instructional aide, and had staff student ratios ranging from 1/4 to 1/8. A total of 16 children who had been previously identified as having special needs by the E.C.S. programs were selected as research subjects. These children exhibited a wide variety of handicapping conditions, including developmental delays, motoric disabilities, sensory impairments and/or behavior disorders, which ranged from mild to very severe impact on the child's functioning.

The investigation took place over a five month period, during which observations were conducted twice weekly for a total of seventeen weeks. During each of the live classroom observations, a total of ten minutes of observational data was collected for each of the handicapped children under study. The observational system allowed for the continuous recording of all of the codable behaviors of the handicapped child, as well as the behaviors of the staff and/or nonhandicapped peers when they engaged in social interaction with the focal child. A multiple–basline across subjects design was used in order to evaluate the effects of the treatment.

The lack of control over certain extraneous varables which is inherent in naturalistic applied research places some limitations on the degree of confidence with which inferences concerning treatment effects can be made. In particular, the use of observational methodogy can pose of significant threat to the internal validity of this investigation, through such confounding factors as observer bias, observer drift or the reactivity of the measurement process. However, as will be discussed in Chapter four, caution was exercised in the design and use of the observational methodology, in order to minimize the confounding effects of these factors.

In order to improve the generalizability of these results, the treatment effects were replicated over a relatively large number of subjects (16) in seven different settings. However, given the heterogeneity of the subjects under study, as well as the differing characteristics of the program settings, the interpretation of differential outcomes is very difficult. That is, it is not possible to conclusively identify the specific variable or combination of variables that may have been responsible for the differential treatment effects demonstrated across subjects. Therefore, this investigation will allow for the estimation of generality of these treatment effects across subjects and settings, as well as suggesting future plausible avenues of research investigating additional variables which may be mediating treatment effects.

II. Review of the Literature

A. Introduction

The delivery of educational services to the handicapped has undergone a process of unprecedented change in the last twenty years. The importance of early intervention as a means of maximizing the potential of the handicapped child has been widely recognised (Kysela, Daly, Doxsey-Whitfield, Hillyard, McDonald, McDonald & Taylor, 1979). Theoretical support for the development of programs for young handicapped children has come from researchers representing a diversity of theoretical perspectives. However, the general consensus is that the early childhood years are the period when developmental processes and behavioral characteristics are undergoing rapid change and are most malleable (Bloom, 1964; Hunt, 1961; Lipton, 1976; Tjossem, 1976).

Further support for the beneficial effects of early stimulation has been found in the growing body of research evaluating the effects of early intervention programs upon disadvantaged children (e.g., Bronfenbrenner, 1974; Karnes & Teska, 1975) and mentally retarded children (e.g., Hayden & Haring, 1976; Kysela et al., 1979). Although evaluation efforts were often characterized by a variety of methodological problems, it has generally been accepted that systematic, structured programming can have a substantial impact on the development of the young child (Apolloni & Cooke, 1978; Guralnick, 1978; Tjossem, 1976). As clinical evidence continued to accumulate concerning the value of these programs, numerous authors (e.g., Bricker, 1978; Guralnick, 1978; Wolfensberger, 1972) began to advocate less exclusionary educational placements for young handicapped children. It was argued that programs which integrate handicapped and nonhandicapped children are a viable educational alternative to segregated intervention programs.

In addition to the increasing body of research supporting early intervention, support for preschool integrated services was also a reflection of shifting societal values and a growing commitment to the principle of normalization (Wolfensberger, 1972). In the former case, the civil rights movement and commitment to equal opportunity for all children resulted in significant changes, particularly in the United States, in the legal and legislative mandates concerning educational services (Apolloni & Cooke, 1978). Further, the principle of normalization has had a significant impact the manner in which services are

delivered to the handicapped. When applied to the planning and implementation of educational services, "the normalization principle means making available to the mentally retarded patterns and conditions of everyday life which are as close as possible to the norms and patterns of the mainstream of society" (Nirje, 1969, p. 181). Wolfensberger (1972) maintains that when the mentally handicapped are educated within "typical" settings, it is possible to establish and maintain culturally normative personal behaviors and characteristics, which should facilitate the acceptance of these children into the wider community. Therefore, both of these forces strongly advocate the right of every child to be educated in the least restrictive environment that can meet the unique needs of the child.

B. Definition of Integration

Despite the rapid expansion in the number of integrated preschool programs over the last decade, as well as a corresponding increase in research conducted in this area, a survey of current literature fails to reveal any consensus concerning the operational definition of the term "integration." Indeed, although some differences have been purported to exist between the terms "integration" and "mainstreaming" (Fredericks, Baldwin, Grove, Moore, Riggs, & Lyons, 1978), they have, for the most part, been used interchangeably in the literature to describe the wide variety of models, techniques and administrative procedures that have been developed in an attempt to move handicapped children out of segregated placements.

It is clear from the literature, however, that integration or mainstreaming is a very complex process, involving far more than the mere physical placement of the handicapped child in the regular classroom. The National Association for Retarded Citizen's (1978) definition of mainstreaming has been cited by Tawney (1981):

> a philosophy or principle of educational service delivery which is implemented by providing a variety of classroom and instructional alternatives that are appropriate to the individual educational plan for each student and allows maximal temporal, social and instructional interaction among mentally retarded and non-retarded students in the normal course of the school day. (p. 27)

While this definition was directed towards the school-age mentally retarded child, the critical elements are applicable to the integration of any young handicapped child into a regular early education program. Firstly, a variety of educational options must be available,

from which the appropriate experiences are selected which best meet the child's unique needs. Secondly, an appropriate individualized educational plan must be designed and implemented in order to maximize the positive impact of the program on the child's development. Finally, planning must allow for maximal temporal, social and instructional interaction among the handicapped and nonhandicapped children (Tawney, 1981).

Further, the Council for Exceptional Children (1975) attempted to clarify the issue by defining what integration was not. First, it is not the wholesale return of all handicapped children in special programs to the regular classroom. Second, it is not permitting children with special needs to remain in the regular classroom without the support or services they require. Third, it is not ignoring the needs of some children for a more specialized program than can be provided in the general educational program and fourth, integration is not necessarily less expensive than segregated classes for handicapped children.

C. Rationale for Integration at a Preschool Level

Despite the complex issues involved in the provision of effective integrated programs, this alternative has been rapidly gaining wide acceptance, as evidenced both by support in educational literature and by the ever-increasing number of programs offered throughout the United States and Canada (Ackerman & Moore, 1976). As was noted, the growing emphasis on early intervention as a means of preventing and/or ameleriorating handicapping conditions, coupled with the philosophical perspective advocating education in the least restrictive setting provided the initial impetus for the integration of handicapped and nonhandicapped children in preschool programs. Further, integration has been promoted on the basis of the conviction that integrated programs have unique programmatic advantages not associated with segregated programs. More specifically, the following issues are frequently cited as the rationale for the placement of a handicapped child in a program with his/her normally developing peers:

1. Social Interaction: Given the importance of peer interaction for optimal child development (Hartup, 1970), it is assumed that social interactions with nonhandicapped children will reinforce handicapped children's prosocial behaviors, as well as skills in other developmental areas (Bricker, 1978; Snyder, et al, 1977).

2. Modeling Effects: Imitation has been widely accepted as playing a central role in social learning (Bandura & Walters, 1963). As a result, support for integration has also been based upon the assumption that handicapped children benefit from exposure to their nonhandicapped peers in that such exposure offers them the opportunity to observe and imitate more age-appropriate developmental and social behaviors (Altman & Talkington, 1971; Bricker, 1978; Wolfensberger, 1972).

3. Teacher Competencies: It has been suggested that the training received by early childhood teachers emphasizes the skills necessary to use a developmental perspective for planning individualized educational experiences for their students (Allen, 1981; Guralnick, 1976).

More general advantages, beyond those which specifically accrue to the handicapped child, are proposed to exist for the nonhandicapped peers, the teaching staff, parents and the community at large. It is believed that increased exposure to, and the opportunity to interact with the handicapped will lead to the development of more accepting, tolerant attitudes by those involved in the program, with the eventual positive impact on general societal attitudes towards the handicapped (Allen, 1981; Bricker, 1978).

Those advocating preschool integration have high expectations concerning the benefits which will purportedly accrue from these programs. However, it must be noted that, to date, these "benefits" offered as the rationale for integration have not been based upon substantive empirical evidence. A brief discussion of each of the issues which have been raised follows, with particular emphasis on the empirical evidence which either supports or refutes these contentions.

Social Interaction Patterns

The major assumption underlying the support for integrated versus segregated programs is that such settings enhance positive social interactions between handicapped and nonhandicapped children (Bricker, 1978; Wolfensberger, 1972). Given the importance of peer interaction as a medium for the development of language, motor, social and cognitive skills (Field, 1981; Guralnick & Paul-Brown, 1977; Reese & Lipsitt, 1970; Strain, Cooke, & Apolloni, 1976), the need for gathering data regarding the effects

of integration upon actual child behaviors is clearly indicated (Guralnick, 1976; 1978). As a result, research has increasingly investigated the degree to which the physical presence of a handicapped child in a preschool setting actually results in social integration.

Unfortunately, observational studies in integrated classes reveal that, in the absence of systematic intervention, there is much less cross-group interaction than has been assumed. For example, Porter, Ramsey, Tremblay, Iaccobo, and Crawley (1978) found that nonhandicapped children maintained closest mean proximity to like peers, and also engaged in social behaviors with each other more often than with retarded classmates. Additionally, studies conducted in settings which have integrated behavior disordered children (Allen, Benning, & Drummond, 1972), disadvantaged children (Feitelson, Weintraub, & Michaeli, 1972), cognitively delayed children (Sinson & Wetherick, 1980; White, 1980; Wilton & Densem, 1977), visually impaired children (Simon & Gillman, 1979), and hearing impaired children (Kennedy, Northcott, McCauley, & Williams, 1976) have also revealed little spontaneous cross-group interaction. Further, although it is difficult to compare across studies, it has been suggested that the degree of separation increases as a function of the severity of the handicapping condition (Guralnick, 1981). It should also be noted, however, that while varying degrees of social interaction have been reported, there has been little evidence of active rejection of the handicapped (Guralnick, 1980; 1981).

It is clear that the physical integration of handicapped and nonhandicapped children is a necessary but not sufficient condition for cross-group interaction (Rogers-Warren, 1982). As a result, researchers have developed a wide variety of strategies in an attempt to facilitate the development and maintenance of peer interaction in preschool integrated settings. In many cases these strategies cast the teacher in the role of the primary intervention agent, using procedures such as contingent attention (Allen, Hart, Buell, Harris, & Wolf, 1964; Buell, Stoddard, Harris & Baer, 1968; Hart, Reynolds, Baer, Brawley, & Harris, 1968) token systems (Russo & Koegal, 1977) or coaching (Zahavi & Asher, 1978). In all cases, these procedures resulted in reliable increases in peer interaction.

However, in the last decade, increased attention has been focused upon the peers as intervention agents to facilitate social interaction. The movement away from strategies employing teachers as the primary agents to effect change has been based on both empirical and practical considerations. First, adult-mediated techniques which can

produce and maintain increased levels of social behavior are not readily exportable to most applied settings (Strain & Fox, 1981). For example, the use of contingent adult attention requires a considerable investment of the teacher's time and attention. Research settings in which the efficacy of this strategy was demonstrated generally reported teacher–student ratios of 5:1 or lower, and the teacher focused sole attention on the target child for an hour or more daily. Further, it has been demonstrated that contingent attention procedures must be maintained over a number of days before durable results are obtained, and the withdrawal of the intervention procedures leads to rapid extinction of the desired effects (e.g., Allen et al., 1964; Russo & Koegal, 1977).

It has also been demonstrated that although adult contingent attention can produce substantial increases in the frequency of positive social behaviors exhibited by the target child, this procedure has not been successful in developing the extended social interaction episodes characteristic of socially competent children (Strain & Fox, 1981). Indeed, one analysis revealed that an immediate temporal effects of adult reinforcement was the termination of the ongoing interaction (Strain, 1980). Further evidence of this unintended treatment effect was provided by Walker, Greenwood, Hops, and Todd (1979) who reported that the reinforcement of initiation or response behaviors resulted in dramatic increases in the occurance of the specific behavior, but did not affect the overall amount of time spent in social interaction. The reinforcement of these discrete social behaviors produced very brief, artificial interactions, "similar to cocktail party or table–hopping behavior" (Hops, Walker, & Greenwood, 1977, p. 12). In contrast, reinforcement applied to behaviors which functioned to maintain the interactions over time resulted in more lengthy interactions and large increases in the overall level of behavior (Walker et al., 1979).

Finally, evidence from naturalistic – observational research (Charlesworth & Hartup, 1967; Guralnick & Paul–Brown, 1977; Patterson, Littman, & Bricker, 1967) indicates that peer interaction is not a random process, but rather that numerous peer contingencies have a significant impact on the development and maintenance of peer interactions. For example, Patterson et al. (1967) demonstrated that reinforcement for aggressive behavior is provided within peer interactions. It was observed that the most common reactions to aggression by preschool children were crying, passivity and defensive

behaviors. When the victim of the aggressive act exhibited such a behavior, a second aggressive response directed at the same victim was likely to follow. This escalation of the aggressive behavior as a function of the victim's response appears to support the interpretation that these responses reinforced the aggressive behavior. Counter-attacks to the aggressive behavior did not appear to reinforce this behavior, as it was likely to be followed by a change in response and/or a change in the choice of the victim. These observations indicate that peers may contribute to the development and/or modification as well as the maintenance of behavior in an early childhood setting.

As a result, research has investigated a wide variety of peer-mediated strategies which are designed to facilitate the purposeful development and maintenance of social behavior. A brief description of three of the peer-mediated intervention strategies which have been reported in the literature follows: (a) prompting and reinforcement, (b) peers as reinforcing agents and (c) peer social initiations. A fourth intervention strategy, peer modeling, will be discussed in a later section of this review.

The first strategy required that the teacher use the same procedures, prompting and reinforcement, that are used in the previously discussed adult-mediated treatments (i.e. Allen et al., 1964). However, in this case, the procedures are applied to the peers, rather than the target child, in order to encourage the initiation and maintenance of social behaviors (Strain, Kerr, & Ragland, 1981). For example, Nordquist and Bradley (1973) successfully used this technique to increase a nonhandicapped child's cooperative play behavior with a socially withdrawn, nonverbal preschool child.

However, it should be noted that of all the peer-mediated strategies to be discussed, this procedure requires the highest level of teacher involvement, in that teachers must monitor the target child's behavior, and use verbal and/or physical prompts in order to have peers approach and interact with the child (Strain et al., 1981). As a result, the use of this procedure places substantial demands on the teacher's time, a factor which was considered to be a major drawback with the previously discussed adult-mediated strategies.

The second strategy involved the training of nonhandicapped peers to reinforce desired behaviors emitted by the target children. For example, it has been demonstrated that preschool children can systematically manipulate the social behavior of their

classmates through the application of contingent social attention (Wahler, 1967) and contingent attention paired with edible rewards (Long & Madsen, 1975). As discussed by Synder, et al (1977), such procedures require that the nonhandicapped children be trained to consistently engage in the following activities:

> First, nonretarded children would need to learn to discriminate those aspects of retarded children's repetoires that merit reinforcement. Second, it would be necessary for nonretarded children to learn to dispense social and material reinforcers on a contingent basis. (p. 264)

One example of such a training procedure was reported by Hamblin and Hamblin (1972), who found that preschool children could directly model the social reinforcement techniques used by the teacher. After training, the children became even more effective than the teacher in applying reinforcement to increase levels of reading ability, an effect which was even more pronounced when peers worked with lower IQ children. Further, Johnston and Johnston (1972) when comparing the effects of a token system, teacher attention and peer attention found that while all three strategies were successful in improving rates of correctly articulated speech sounds, the use of peer attention was the only strategy which produced generalized effects in other settings.

The final strategy has been developed by Strain and his colleagues, who have investigated the functional effects of an increased level of social initiations on the social behavior of preschool children exhibiting a wide variety of handicapping conditions (Ragland, Kerr, & Strain, 1978; Strain, 1977; Strain, Shores, & Timm, 1977; Strain, Kerr, & Ragland, 1979). This procedure involved training peer confederates, within a role-playing situation, to use verbal and motoric behaviors to initiate social interactions with the target handicapped child. It has been repeatedly demonstrated that this strategy can have a significant impact on the frequency of positive social behaviors emitted by the subjects: i.e. both responses to the initiations of others as well as number of positive initiations emitted by the target child.

However, it has been noted that in most cases, there is a direct relationship between the level of social behavior of the subject prior to treatment and the immediate and generalized outcome of treatment (Strain, 1977; Strain et al., 1977). Children who exhibited lower baseline levels of social behavior were less responsive to treatment than

were children with higher baseline levels. This observation does not apply, however, when the treatment is used with children exhibiting low baseline levels of social behavior and high levels of self-stimulatory behavior (Ragland et al., 1978; Strain et al., 1979). One possible explanation for the responsivity of these children to treatment is that their self-stimulatory behavior may have competed with, or masked an existing social repetoire (Strain & Fox, 1981).

In summary, research to date indicates that the use of nonhandicapped peers as behavior change agents in a direct and systematic manner is a potentially significant educational strategy that is unique to mainstreamed settings (Guralnick, 1981). When used as a strategy to foster cross-group social interaction, these peer mediated strategies have significant advantages over the use of adult-mediated strategies. First, it has been repeatedly demonstrated that peer-mediated strategies produce direct treatment gains equal to, or greater than those associated with adult-mediated intervention (Strain, et al., 1981). No less important to those in the applied settings, the use of peers significantly reduces the amount of time and effort which must be invested by the teacher. The effect of utilizing peers is to greatly increase the number of instructional personnel in the classrooom who can deal effectively with the needs of the handicapped child (Allen, 1976).

As well, although results are somewhat equivocal, research appears to indicate that a higher level of generalization and maintenance is seen as the result of peer mediated treatment (Strain & Fox, 1981). However, it is clear that this issue must be further investigated in order to determine how best to achieve maximal treatment effects across settings and the spread of training effects to non-conditioned responses. It would appear that specific programming is necessary to produce the desired post-treatment change (Strain & Fox, 1981).

Modeling Effects

In addition to the purported benefits which accrue to the handicapped child as a result of social interaction with nonhandicapped peers, it has also been suggested that the child will benefit from more indirect contact. That is, in an integrated setting, it is assumed that nonhandicapped children act as behavioral models to enhance the development of the

handicapped child (Altman & Talkington, 1971; Bricker, 1978). As explained by Wolfensberger (1972), it is believed that at the preschool level, "normal peers seem to constitute non-threatening models from which the handicapped (especially the retarded) children learn much more than they typically do from their impaired peers" (p. 51).

However, naturalistic observations of integrated settings have repeatedly demonstrated that handicapped children do not spontaneously imitate nonhandicapped peers unless specific strategies are used to facilitate imitative behavior (Devoney, Guralnick, & Rubin, 1974; Guralnick, 1976; Snyder, et al., 1977). In fact, Snyder and his colleagues (1977) point out that despite the commonly held assumption that such imitation would occur, "it is questionable whether preschool retarded children possess sufficient discrimination skills to imitate the behavior of peers without specific training" (p. 263).

As a result, there is a considerable body of research which has utilized peer imitation for instructional purposes, particularly at the preschool level. It has been demonstrated that these strategies can be an effective means of promoting language development (Cooke, Cooke, & Apolloni, 1978; Guralnick, 1976), social behaviors (Devoney et al., 1974), and use of materials (Apolloni, Cooke, & Cooke, 1977; Peck, Apolloni, Cooke, & Raver, 1978). As well, Peck and his colleagues (1978) reported that significant increases in social interaction between handicapped and nonhandicapped children were associated with imitation training. Finally there is some evidence that behavior change as a result of imitation training will generalize outside the direct training environment (Nordquist, 1978; Peck et al., 1978) as well as across responses (Apolloni et al., 1977; Nordquist, 1978).

These studies suggest that peer imitation has the potential to be an effective strategy for handicapped children in integrated preschool settings. However, there are numerous issues which require further investigation. For example, insufficient attention has been paid to delineating the effects, both attitudinal and behavioral, of being imitated on the nonhandicapped peers (Guralnick, 1981; Peck, Cooke, & Apolloni, 1981). It is clear, however, that fears of "reverse imitation" or the nonhandicapped child's imitation of the less sophisticated behaviors of the handicapped children appear to be unfounded (Peterson, Peterson, & Scriven, 1977). Such imitation does not occur unless it is directly reinforced as part of the training procedure, and then only if the behavior of the handicapped child is appropriate (Cooke, Apolloni, & Cooke, 1977).

Attitudes Toward Integration

The attitude of the teacher has been considered to be a crucial ingredient in the success of an integrated program (Strain & Kerr, 1981). First, it is hypothesized that the expectations arising from the teacher's attitude towards the handicapped student will lead teachers to treat students in a way that helps bring about the outcome they expect, or the "self-fulfilling prophecy" (Brophy & Good, 1974; Rosenthal & Jacobson, 1968). While it should be noted that the methodology used in the research on teacher expectancies has been widely criticized, and therefore the educational implications of the teacher's attitudes unclear (Baker & Gottlieb, 1980), most critics of this type of research would not dispute the reality of some type of expectancy effects (Strain & Kerr, 1981).

Secondly, it has been suggested that the teacher's attitude towards the handicapped child will be the major determinant of the attitudes subsequently formed by the nonhandicapped peers (Allen, 1981). This contention is supported by research which has demonstrated that children model teacher behavior and attitudes which are incidental to the curriculum objectives (Bandura & Walters, 1963). For example, Gallagher (1967) demonstrated that when teacher attitudes are more favorable to the handicapped, their students are more accepting.

Given the importance of a positive teacher attitude, integration at a preschool level has been advocated on the basis of research which indicates that teacher attitudes become increasing less positive with ascending grade level (Larrivee & Cooke, 1979). In Alberta, positive attitudes were found with kindergarten teachers who are working in integrated settings: 82 per cent of teachers in urban preschool classrooms, and 90 per cent of teachers in rural preschool classrooms felt postively towards the integration process (Kysela & Barros, 1983). Given these positive attitudes held by teachers working at a preschool level, it would appear that they would be more accepting of handicapped children, which should facilitate their successful temporal, social and instructional integration (Baker & Gottlieb, 1980). Further, it would appear that training for teachers at a preschool level can focus more heavily on the skills required in the integrated classroom, since efforts to modify attitudes do not appear to be necessary (Blacher-Dixon, et al., 1981).

Integration at the preschool level has also been advocated on the basis of the belief that young nonhandicapped children are less likely to be perturbed by individual differences encountered in their contact with the handicapped (Guralnick, 1976), and that the opportunity to interact with handicapped children will assist them to build attitudes of acceptance and tolerance as well as enhance their knowledge of the capabilities of the handicapped (Allen, 1981; Bricker, 1978; Snyder, et al., 1977; Wolfensberger, 1972). This issue would seem to be particularly important in light of the disappointing results that are found when older children have been integrated into regular classrooms. For example, Gottlieb and his colleagues (Goodman, Gottlieb, & Harrison, 1972; Gottlieb & Budoff, 1973; Gottlieb, Cohen, & Goldstein, 1974; Gottlieb & Davis, 1973) have conducted a series of studies which indicate that as the amount of time spent in integrated settings increased, the retarded child's social standing diminished accordingly.

There appears to be a limited amount of evidence which does indicate that younger children are more accepting of the handicapped than are older children (Goodman et al., 1972; Gottlieb, 1971; Kennedy & Bruininks, 1974). For example, Peterson, Peterson, and Scriven (1977) found that developmental delays did not affect the popularity of preschool children as measured through a sociometric device. Esposito and Peach (1983) found a significant improvement in the nonhandicapped children's attitudes towards children with severe and observable handicaps after 30 weeks of exposure.

However, it is clear that the use of sociometric devices is fraught with methodological problems (Bruininks, Rynders, & Gross, 1974; Foster & Ritchey, 1979), thus making it very difficult to clearly interprete such research. For example, Dunlop, Stoneman, and Cantrell (1980) failed to achieve adequate test-retest reliability when using a sociometric instrument with preschool children. Further, behavioral observations of social interaction have often been shown to be inconsistent with the results of sociometric instruments (Dunlop et al., 1980; Goodman et al., 1972; Gottlieb & Davis, 1973).

Finally, it should be noted that there is some anecdotal information which indicates that parents of both handicapped and nonhandicapped children show increasingly positive attitudes towards handicapping conditions as well as the practice of integration as a result of their child's involvement in an integrated program (Bricker, 1978; Turnbull &

Blacher-Dixon, 1981; Vincent, Brown, & Getz-Sheftel, 1981). Further, it is hypothesized that the increased positive attitudes of the parents will couple with those of the school personnel and the nonhandicapped peers and will eventually have an impact on general community attitudes towards the handicapped (Bricker, 1978).

In summary, research on the attitudes of the teachers, parents and children involved in preschool programs does suggest that these settings may indeed be more accepting of the integration of the handicapped. However, given the methodological problems associated with attitudinal research, as well as the anecdotal nature of much of the evidence, the degree to which the preceding research can be generalized to other settings is clearly limited.

Teacher Competencies

It has been suggested that integration at the preschool level is facilitated by the fact that early childhood programs are more orientated towards individualized educational experiences than are classrooms for older children (Guralnick, 1976). The individualized nature of these programs is believed to be the result of the nature of training given preschool teachers. In most cases, these preservice education programs emphasize the wide variations and developmental differences characteristic of the first five or six years of life (Allen, 1981), and therefore the developmental perspective is usually reflected in actual program planning (Guralnick, 1976). Further, Garwood (1979) has proposed that preschool teachers can develop instructional programs and educational strategies for handicapped children based upon their knowledge of normal developmental processes.

However, despite this optimism concerning the ability of preschool teachers to meet the needs of the handicapped child, it has been repeatedly found that teachers feel that they do not have the skills needed to effectively teach the handicapped children integrated into their classroom (Baker & Gottlieb, 1980; Gickling & Theobold, 1975; McGinty & Keogh, 1975; Shotel, Iano, & McGettigan, 1972). Similar results were found with preschool teachers in the province of Alberta: less than 30 per cent of teachers in both rural and urban centres felt that their training had prepared them to deal adequately with an integrated classroom (Kysela & Barros, 1983). Further, it has been found that when teachers were questioned at the beginning and end of the school year, in the absence of

inservice training or supportive services, the teacher's already low estimates of their abilities dropped even further once they had actually worked with the handicapped (Shotel et al., 1972).

Clearly, this lack of training can have a deleterious effect on the quality of education received by the handicapped child, and will negatively affect the degree to which the child is integrated in the classroom (Baker & Gottlieb, 1980). The negative effect which this lack of confidence in their ability appears to have on the teachers' attitude towards integration is also important (Larrivee & Cooke, 1979; Stephens & Braun, 1980; Williams & Algozzine, 1979). Although as previously discussed, the educational implications of positive and/or negative attitudes is as yet unclear, "(f)ew would deny however, that an understanding and accepting teacher is an important component of an appropriate education for any child" (Baker & Gottlieb, 1980, pp. 3-4).

Given the crucial impact of the instructional staff on the quality of integrated programs, it is not surprising that a large percentage of the literature on integration has stressed that preschool teachers must have the specific skills and competencies necessary to effectively manage an integrated class (e.g., Allen, 1981; Madle, 1982; Raver, 1980; Zigler & Muenchow, 1979). In fact, Bricker and Sandall (1979) have stated that the critical difference between programs which have successfully integrated handicapped children and those which have not been successful can be attributed to the staff's committment, confidence and competence in working with the handicapped. Further, it has been found that parents of the handicapped also place significant emphasis on the importance of staff competencies: for example, Sarason and Doris (1979) found that parental opposition to mainstreaming may have been based on the perception that regular class teachers are not able to meet the needs of the handicapped child.

There have been some attempts to delineate the precise skills required by the teacher in an integrated setting (Allen, 1980; Galloway & Chandler, 1978; Kysela & Barros, 1983; Meisels, 1977). For example, Kysela and Barros (1983) suggest that preschool teachers should have knowledge of normal child development as well as the educational implications of different handicapping conditions. Further, they should have the ability to assess the child's needs, plan and implement individualized programs through the use of appropriate instructional strategies, facilitate social interaction beween the children, and

work effectively with parents and other professionals in order to most effectively meet the unique needs of the child. However, it must be noted that to date, there is little direct empirical evidence validating the effectiveness of these skills in the successful integration of the handicapped child.

In summary, there is a widespread consensus in the literature concerning the critical relationship between the teacher's skills and competencies and the successful integration of the handicapped child. However, it is clear that many teachers do not believe that they possess the necessary skills in order to meet the educational needs of handicapped children. While attempts have been made to delineate the needed teacher skills, there is little direct empirical evidence of their effectiveness in the classroom setting.

D. Inservice Training

Despite the ambiguous nature of the literature reviewed to this point, it is clear that the mere physical placement of the handicapped child in a regular class is not sufficient to fulfill the goals of integration. The results of various studies which have attempted to identify the precise ingredients which are necessary to enhance the effects of integration and therefore improve the quality of education provided to the handicapped child are more promising. While many of these innovations would require change at an administrative level (i.e. staff/student ratios, provision of support services), there is a general consensus that the most critical aspect affecting program quality is the effectiveness of the instructional personnel. More specifically, referring back to the definition of integration, the instructional personnel must have knowledge of, and the ability to implement the necessary strategies to: a) meet the unique educational needs of the child; and b) facilitate maximal temporal, social and instructional integration.

However, it is clear that the present trend towards integration has created a discrepancy between roles school staff have been trained to fill and the roles with which they are now confronted. It has been found that very few regular class teachers have any preservice special education training (Baker & Gottlieb, 1980), and despite the increasing prevalence of integration, many teacher training institutions continue to educate personnel in the tradition of segregated, categorical placements (Sarason & Doris, 1978; Siperstein & Bak, 1980). Even if new teachers were receiving appropriate preservice education, the

expanding number of integrated preschool classrooms (Ackerman & Moore, 1976) and the lowered rate of teacher attrition (Browder, 1983) precludes the possibility of relying on newly trained staff to fill all of the instructional positions in integrated programs. Further, the teacher aides, who may have not received appropriate preservice education, may also have difficulty coping with the needs of the integrated handicapped child (Kysela & Barros, 1983).

Therefore, it would appear that there is a critical need for systematic, comprehensive inservice programs that would train school staff already in the field in the specific skills necessary to maximize the impact of the integration process (Kysela & Barros, 1983) as well as provide a means for adequately trained personnel to keep abreast of newly developing strategies for working with the handicapped (Browder, 1983). The development of staff competencies with new teaching strategies should not only improve their ability to deal with the handicapped children, but positively affect the education of all children in the class (Bricker & Sandall, 1979; McGinty & Keogh, 1975).

Despite the consensus among researchers (e.g., Blietz & Courtnage, 1980; Glick & Schubert, 1981), principals (Payne & Murray, 1974) and teachers (Kysela & Barros, 1983; McGinty & Keogh, 1975) concerning the need for effective inservice training for those in integrated settings, descriptions of successful programs in the literature are rare. However, a review of general staff training literature (i.e. Browder, 1983; Harris, Bessent, & McIntyre, 1969; Hummel, 1982; Kazdin, 1980; Snell, Thompson, & Taylor, 1979) suggests several critical components which must be considered in the development and implementation of effective inservice programs; these include the establishment of the inservice objectives, effective presentation of content, the use of procedures to ensure generalization to the workplace, and finally, inservice evaluation.

Inservice Objectives

The first step in designing an effective inservice plan is to determine what skills and competencies are relevant to the needs of the staff in an integrated setting (Hentschel, 1977), and secondly, limiting this list to the priority areas which can be taught given the time and financial resources available (Browder, 1983). Once the priority skills and competency areas have been identified, it is possible to delineate the inservice objectives,

or specific statements of the expected behavioral outcomes of the training procedures: i.e. what change in staff behavior is expected as a result of training? Further, inservice objectives provide guidance as to the selection of appropriate methods of presentation. For example, if one of the inservice objectives calls for staff to demonstrate the use of contingent social praise, training may include a demonstration of the use of this strategy, followed by supervised practice (Harris et al., 1969).

There are several sources of information which can be used when identifying inservice objectives. First, it is recommended that the staff be surveyed in an attempt to identify their specific needs and concerns (Browder, 1983; Hummel, 1982). However, it should be noted that staff may not be able to clearly identify their training needs because of a lack of knowledge concerning effective teaching strategies or poor self-evaluation skills (Browder, 1983). As a result, it may also be necessary to refer to the research literature for guidance concerning critical staff competencies. Although research at the preschool level is limited, several sources discuss the staff competencies necessary for successful integration of the handicapped child (Allen, 1980; Galloway & Chandler, 1978; Kyslea & Barros, 1983; Meisels, 1977).

Finally, to ensure that inservice objectives are relevant to the needs of both the staff and the students, they must be validated through classroom observation (Snell et al., 1979). Such observations can confirm the need for inservice training based on the stated objectives, and may also reveal other areas of need (Browder, 1983). Therefore, as a result of following the above procedures, the designer of an inservice program can be more confident that the training will be relevant to the needs of the staff, which enhances the possibility that they will actually use their newly acquired abilities in the classroom.

Presentation of Content

The traditional method of presenting information to staff during inservice training has been the lecture and/or discussion method (Madle, 1982). Unfortunately, research investigating changes in staff and/or child behaviors as a consequence of such instruction have generally shown transient effects or no change at all (Coissart, Hall, & Hopkins, 1973; Montegar, Reid, Madsen, & Ewell, 1977; Pommer & Streedback, 1974). Even if staff are given constant verbal or written reminders to use the techniques they have learned, no

reliable change in staff behavior occurs (Quilitch, 1975). Although lectures may be a necessary component of inservice training (Madle, 1982) researchers have attempted to delineate other methods of training which appear to have a greater impact on staff performance.

For example, there is a growing body of evidence which indicates that modeling is an effective method of staff training that can be used both within the work environment as well as within outside inservice traning situations (Madle, 1982). It has been found that inservice training employing modeling as the primary instructional technique had a significant impact on staff behavior in the workplace. For example, Watson and Uzzell (1980) found that staff maintained and generalized the skill of teaching self-help behaviors after training both outside and within the workplace. Similar results were demonstrated by Gardner (1972) who found that modeling, in combination with other strategies such as role-playing resulted in greater changes in staff performance than did academic instruction. As well, it should be noted that modeling can be accomplished through live demonstrations or the use of videotapes (Mann, 1976).

As previously mentioned, role-playing is often used in combination with modeling as a method of training staff to implement new teaching strategies. This technique allows the repeated practice of performance skills with immediate corrective feedback from the training personnel, most preferrably in a situation closely resembling that of the classroom setting (Jones & Eimer, 1975). Role-playing has been found to be particularly effective when attempting to train teachers in strategies which involve the simultaneous implementation of a variety of skills: i.e. behavior management strategies (Gardner, 1972; Jones & Eimer, 1975).

Further, more general suggestions have been found in the literature concerning inservice training. For example, wherever possible, staff should be able to discuss and generate their own ideas, to share these ideas with other participants and assist each other in the modification of these ideas (Cruickshank, Lorish, & Thompson, 1979; Harris et al., 1969). Frequent opportunity for participant feedback will allow inservice personnel to determine if material has been presented in sufficient detail, and clarify issues as needed (Harris et al., 1969). Finally, the combination of a variety of strategies can help maintain high interest levels, therefore maximizing the impact of training (Browder, 1983).

Generalization to the Classroom

As has been noted, careful planning of inservice objectives and the effective presentation of content can have a significant impact on the degree to which trained skills and competencies generalize to the classroom. However, research has also investigated specific strategies which can be used after training which function to ensure the implementation and maintenance of newly trained behaviors in the classroom. The delivery of systematic consequences for the desired performance can have a significant impact on staff performance (Ayllon & Azrin, 1968).

One commonly used post-training technique consists of providing staff with verbal, written or graphically displayed feedback concerning the quality or level of their performance. While some studies have demonstrated that such feedback enhances staff performance (Andrasik & McNamara, 1977; Panyon, Boozer, & Morris, 1970; Pomerleau, Bobrove, & Smith, 1973), in other cases it often produces little or no effect (i.e. Breyer & Allen, 1975; Cossairt et al., 1973; Rule, 1972). As a result, research has attempted to identify other procedures with more consistent effects (Kazdin, 1980).

For example, it has been demonstrated that social praise coupled with feedback results in more consistent changes in staff behavior than feedback alone (Cossairt et al., 1973; Montegar et al., 1977; Rule, 1972). It was further demonstrated that changes in staff behavior were maintained and even increased when praise was delivered on an intermittant schedule (Cossairt et al., 1973). Therefore, it would appear that this strategy would allow the inservice personnel to maintain changes in staff behavior without an extensive investment of time or effort.

Tangible rewards have also been demonstrated to be an effective means of maintaining changes in staff behavior. Examples of rewards include trading stamps (Bricker, Morgan, & Grabowski, 1972), tokens which are exchanged for cash (Pommer & Streedback, 1974), cash (Pomerleau et al., 1973), control over staffing schedule (Iwata, Bailey, Brown, Foshee, & Alpern, 1976), and days off (Watson, 1976). However, despite the efficacy of these tangible reinforcers, it is clear that in most school systems the use of such rewards is simply not feasible (Repucci & Saunders, 1974).

The final strategy to be discussed involves self-recording, which requires staff to monitor and record incidences of the desired target behaviors. This procedure has been

used successfully with mothers of handicapped children in a study which investigated the effect of contingent social attention on the frequency of appropriate behaviors. Self-recording was associated with significant changes in both maternal and child behaviors, and further, these changes were maintained after recording was discontinued (Herbert & Baer, 1972). Hendricks, Thoresen, and Hubbard, (1974; cited in Madle, 1982) also demonstrated consistent change in teacher and student behaviors using this procedure, although change was not maintained after removal of recording. However, it should also be noted that results have not been consistently positive: in a study by Van Houten and Sullivan (1975), self recording had no effect on a teacher's use of social praise.

In summary, it would appear that the literature on staff training provides some valuable guidance concerning specific strategies which can be used to maximize the impact of inservice training, and enhance the probability that newly acquired skills will be implemented and maintained in the classroom. However, it is clear from the often conflicting results reported on the efficacy of these strategies that the use of one or more of these techniques will not guarantee desired results. As a result, the final, and most important component of an inservice program is the design of specific procedures which allow the evaluation of the effects of training on actual staff performance in the field.

Evaluation

As noted, evaluation of the impact of training on the staff performance is the most important, but unfortunately, most often neglected aspect of inservice training. In fact, one of the most commonly used evaluation techniques has been to determine the participant's satisfaction with the inservice (Browder, 1983). However, Quilitch (1975) has demonstrated that there is no relationship between the inservice training, staff evaluations and the inservice's impact on performance; despite overwhelmingly positive evaluations, no changes in staff performance were observed. Another common technique, the testing of academic knowledge after inservice training, also fails to deal with the issue of staff performance (Madle, 1975, cited in Madle, 1982). Such a measure would be appropriate only in situations where inservice objectives have an indirect relationship to staff

performance: i.e. knowledge of medication side-effects (Browder, 1983).

In most cases, evaluation of inservice objectives must answer two basic questions. First, has this training resulted in changes in staff behavior? It is quite clear that even if the inservice program trains staff in strategies that have been repeatedly demonstrated to be effective, their utility in the classroom will be dependent on the efforts and skill of the staff (Quilitch, 1975). Therefore, effective evaluation procedures must be sensitive to change in staff behaviors.

However, although staff must mediate the delivery of the teaching strategies, the ultimate measure of the effectiveness of these strategies is the behavior of the students (Greene, Willis, Levy, & Bailey, 1978). Therefore, a second question must be asked: Have the changes in staff behavior reliably facilitated change in the child's behavior? Changes in child behavior are the most relevant measures of the effectiveness of the strategies and therefore, the inservice training which was designed to encourage their implementation (Green et al., 1978).

Clearly, the only way to answer these questions is to conduct systematic, reliable observations of actual staff/child behaviors in their natural setting (Browder, 1983). Further, the use of applied behavior analysis designs such as reversal, multiple baseline (Kratochwill, 1978; Hersen & Barlow, 1976) or changing criterion designs (Hartman & Hall, 1976) can provide a systematic means of evaluating the impact of the inservice program. These issues will be discussed in greater detail in a later section of the review.

It is clear from the literature reviewed to this point that the provision of systematic inservice programs are considered to be a viable means of training instructional staff in the specific skills and competencies needed to effectively integrate young handicapped children into regular preschool programs. Further, the general staff training literature has provided specific guidelines as to the techniques which can be employed to increase the probability that such training will actually have a significant impact on the behavior of the participants, and therefore have a positive impact on the students with whom they work. On the basis of this literature, and the preliminary investigations of existing preschool programs in Alberta conducted by Kysela and Barros (1983), two inservice modules have been developed for staff currently integrating young handicapped children into regular preschool programs. A discussion of their format, content and evaluation follows.

E. Inservice Module #1: Ecological Teaching Strategies

Rationale

The use of appropriate teaching strategies are important for the effective instruction of any child, and are even more crucial in the instruction of handicapped children. As a result, Kysela and Barros (1983) have delineated three specific instructional strategies which can be used by staff in preschool settings to facilitate the acquisition of various skills by the handicapped child. The first strategy, the direct teaching model (Becker, Englemann, & Thomas, 1975) involves very structured, adult-initiated interactions which can be used to effect very rapid acquisition of specific skills (Kysela et al., 1979). Secondly, incidental teaching strategies are employed in naturally occuring interactions to either transmit new knowledge, or allow the child to practice and generalize skills learned through direct teaching (see Kysela et al., 1979, for a more comprehensive explanation of these strategies). Finally, the use of ecological teaching strategies (MacDonald, 1982) are recommended as a means to facilitate the development of communication skills.

However, given the time period available for the training session, (3 hours) it was clear that it would only be possible to concentrate on the development of staff competency in the use of one of these three strategies. The selection of the ecological teaching strategies (MacDonald, 1982) was based on the following rationale. First, the development of communication skills are of the highest priority in the instruction of young handicapped children. These skills play an important role in cognitive development, the facilitation of social interactions, the adequate development of self-concept and allow the child to manipulate and control their environment (Karnes & Zehrbach, 1975). As well, these skills are considered to be vital for the accurate assessment of the child's abilities, and therefore the design of an appropriate educational program (Kates & McNaughton, 1975).

Teachers integrating handicapped children often encounter children who exhibit speech or language delays. In fact, it has long been recognised that communication deficiencies are a major identifying characteristic of the mentally retarded (Hollis & Carrier, 1975) and are a central factor in the AAMD classification of adaptive behavior levels (Snyder & McLean, 1976). As well, communication deficiencies are also associated with

other handicapping conditions, such as autism, cerebral palsy, and hearing impairment (Bensberg & Sigelman, 1976). Assessments of 65 handicapped children integrated into preschool programs in Alberta indicated that deficient expressive language skills were a common characteristic exhibited by these children, and therefore, specific attention towards facilitating skill development in this domain was recommended (Kysela & Barros, 1983).

Secondly, observations in existing preschool programs reveal that the great majority of class time is spent in large or small group instruction, rather than in individualized teaching sessions (Kysela & Barros, 1983). Thus, it was hypothesized that since ecological teaching strategies are appropriate for use within any adult-child interaction that occurs during the school day, these skills would be more relevant to the teacher needs as they would be used with a higher frequency than methods such as the direct teaching model.

The ecological teaching strategies that were selected as training objectives are part of the Ecological Communication Opportunities (ECO) model which has been developed by MacDonald and his colleagues for use with children exhibiting a wide variety of handicapping conditions (MacDonald, 1982). This model has been developed over the past decade, and is based both on clinical work with handicapped children, as well the integration of the theoretical concepts and findings from several different disciplines. As delineated by MacDonald and Gillette (1982) the primary theoretical sources which were used to formulate this model were as follows:

> . . . semantic psycholinguistics (Brown, 1973; Bloom, 1978) which deals with the question, "What do children first learn to talk about?"; pragmatics (Bates, 1976; Moerk, 1977; Bruner, 1975) which concerns the motivation behind communicating, why a child communicates; parent-child interactions (Bruner, 1977; Lewis and Rosenblum, 1974; Stern, 1977; Brazelton, 1974; MacDonald, 1981), which view early conversations between parent and child as both the place and process for language development; communication theory (Watzlawick, Beavin, & Jackson, 1967, 1974; Bateson, 1966; Haley, 1964) which provides an approach to deal with all the behaviors that communicate, not only sounds and words; and, finally, behavioral theories (Skinner, 1953; Bandura, 1977) which provides rules governing the functional relations between persons and among behaviors within a person (p. 2). (A complete explanation of the development of this model can be found in MacDonald, 1982)

Briefly, the ECO model assumes that speech and language develop from within the interactions and conversations between the child and the significant others (SOs) in his/her environment. As a result, MacDonald (1982) has developed a series of strategies which

can be used by SOs in their interactions with the child to facilitate language development. As discussion of the specific strategies which were targeted by this inservice module follows.

Objectives of the Inservice

The major objectives of this inservice module were to develop staff competency in the use of the following ecological teaching strategies:

1. As a result of training, the rate of turntaking exchanges between the instructional staff and the handicapped child will increase.
2. As a result of training, instructional staff will demonstrate an increase in the rate of use of the ecological teaching strategies:
   a. Imitation
   b. Signal
   c. Physical Prompt
3. As a result of training, the instructional staff will demonstrate an increase in the number of turns taken when interacting with the handicapped child.
4. As a result of training, the handicapped child will demonstrate an increase in the number of turns taken when interacting with the instructional staff.
5. As a result of training, there will be an increase in the length of the turntaking exchanges between the instructional staff and the handicapped child.

Content of the Inservice

Prior to the introduction of the specific ecological teaching strategies, the rationale underlying the ECO model was briefly explained. Further, examples of problematic behavior patterns commonly seen in the interactions of handicapped children were presented (See Appendix A), and the participants were encouraged to explain the specific problems they encountered when interacting with the handicapped children in their classrooms. This discussion provided the basic framework within which the strategies were presented. It was believed that by presenting each strategy and delineating its use for the remediation of specific problems encountered in the classroom, the staff would perceive the strategies as being more relevant to their needs and therefore be more likely

to use the skills in their classrooms (Hentschel, 1977).

In order to achieve the specific objectives of the inservice module, the following strategies were presented:

Objective #1:

> As a result of training, the rate of turntaking exchanges between the instructional staff and the handicapped child will increase.

The first strategy presented to the instructional staff was turntaking. "Turntaking is one skill that is basic to interactions and conversations. Turntaking involves one person acting or communicating then stopping and waiting for the other person to communicate." (MacDonald & Gillette, 1982, p. 8). While the importance of turntaking would appear to be axiomatic, it has been demonstrated that handicapped children participate less than normally developing children in verbal and nonverbal exchanges with adults (Macdonald, 1982; Schiefelbusch, 1982). Therefore, the importance of establishing a reciprocal turntaking relationship with the child during any type of situation was stressed.

Secondly, in order to establish an effective turntaking relationship with the child, the staff must first determine how the child communicates, and then match that mode in their communicative interactions with the child. By stressing the importance of the mode of communication used by the child, the instructional staff recognise that:

1) All behavior can communicate, and every child is ready to communicate in some way. It is not necessary to wait for the development of conventional speech in order to begin intervention.

2) If the match between the modes used by both the adult and the child are close, then the child "will have models he can internalize and assimilate into his current communicative schemes" (MacDonald & Gillette, 1982, p. 27).

3) To maximally facilitate language development, the adult and the handicapped child must take turns in a way the child will understand and respond to.

As a result, staff were to first assess the mode of communication used by the child, (i.e. nonlinguistic, vocal, single words or word phrases) and then to match that mode in their communicative interactions with the child.

Objectives #2, #3, #4, #5:

As a result of training, instructional staff will demonstrate an increase in the rate of use of the ecological teaching strategies:
a. Imitation
b. Signal
c. Physical Prompt

As a result of training, the handicapped child will demonstrate an increase in the number of turns taken when interacting with the handicapped child.

As a result of training, the handicapped child will demonstrate an increase in the number of turns taken when interacting with the instructional staff.

As a result of training, there will be an increase in the length of the turntaking exchanges between the instructional staff and the handicapped child.

Finally, specific strategies were taught to the instructional staff which would allow them to establish and maintain a reciprocal turntaking relationship with their handicapped students. These included:

1. Imitation
2. Wait
3. Signal
4. Physical Prompts

(For an explanation of the use of these strategies, see Appendix A.)

It was hypothesized that the use of these strategies would allow the staff to both successfully enter into a turntaking relationship with the child, and then gradually extend the length of the turntaking sequence.

Presentation of Content

See Table 1 for instruction methods used in the presentation of inservice content.

Table 1

Ecological Teaching Strategies

Presentation of Content

Content	Method of Presentation
I Ecological Teaching Strategies	
A. Rationale	Lecture
B. Common Interaction Problems	Lecture/Visual Aids
II Turn-Taking	
A. What is Turn-Taking	Lecture/Visual Aids
B. Turn Balance/Dominance	Video-tape models
III Establishing Turn-Taking	
A. Imitation	Lecture/Video tape models
B. Matching Modes	
Rationale	Lecture/Visual Aids
Nonlinguistic	Role play/corrective feedback
Vocalization	Role play/Corrective feedback
Words/Phrases	Role play/Corrective feedback
Assessment	Small group discussion
IV Maintaining Turn-Taking	
A. Structure for Give & Take	Lecture
B. Wait	Video-tape model
C. Signal	Video-tape model
D. Physical Prompt	Live model
E. Model	Live model
F. Summary of Strategies	Role play/corrective feedback
V Communication Stations	
A. Examples	Lecture
B. Establishing stations	Small group discussions–presentation of ideas to large group
VI Discussion/Questions	Large group discussion

Generalization to the Classroom

In order to facilitate maximal generalization of the newly acquired skills to the classroom, inservice personnel made a minimum of two classroom visits. At this time, instructional staff were observed during their interactions with the children, and given verbal feedback coupled with social praise concerning the quality of their performance (i.e. Coissart et al., 1974). Additionally, if staff were having difficulty implementing specific strategies, inservice personnel would model the appropriate use of the strategies (i.e. Watson & Uzell, 1980).

Evaluation

Given the nature of the inservice objectives, it was clear that indirect measures, such as standardized assessment devices, would be inappropriate for use in measuring the impact of the training module. Consequently, direct observation of the behaviors of the instructional staff, the handicapped child and the adult/child communicative interaction patterns was conducted. A complete discussion of the observational code and the research design used to evaluate the effects of the inservice training will be presented in Chapter four.

F. Inservice Module #2: Use of Peers to Facilitate Social Interaction

Rationale

The ability of the instructional staff in preschool programs to use effective strategies to facilitate social interaction between the handicapped and nonhandicapped children is considered to be a crucial factor in the provision of effective integrated program (Kysela & Barros, 1983). The rationale for the high priority given these skills is based on the increasing body of research which indicates that child-child interactions are an important prerequisite for much of a child's behavioral development. Hartup (1978) has stated that, "in the absence of sustained and successful encounters with age-mates, children are developmentally "at risk" in several respects" (p. 20). This statement has been confirmed by research which clearly indicates that peer interaction is a crucial factor in the development of a broad array of competencies in the cognitive, language, social and motor

domains (i.e. Blurton Jones, 1967; Field, 1981; Guralnick & Paul-Brown, 1977; Piaget & Inhelder, 1969; Reese & Lipsitt, 1970; Strain et al., 1976).

The inability to initiate and maintain positive social relations with the peer group can have a profound influence on the child's later development (Hops, et al., 1977). Moreover, there is evidence to suggest that social withdrawal is a relatively stable behavior pattern. For example, Waldrop and Halverson (1975) conducted a longitudinal study of children from the ages of 2 1/2 to 7 1/2 and found only minor fluctuations in the quality and quantity of social behaviors exhibited over time.

Strain and his colleagues (1976) have also reviewed a number of studies which demonstrate a relationship between social withdrawal in childhood and later adult mental illness. It should be noted, however, that the various methodological problems associated with this research make it difficult to draw firm conclusions on the basis of these results. Regardless, given the importance of peer interaction for the development of many skills and competencies as well as the evidence concerning the relative stability of the social behavior patterns, at least in the short term, failure to intervene "may result in the forfeiture of years of vital learning opportunities." (Strain et al., 1976, p. 108).

Specific strategies which facilitate social interaction would appear to be useful for the teacher in an integrated classroom as it has been clearly demonstrated that social withdrawal is a common characteristic of handicapped children. Field (1981) has noted that the delay in social skill development in handicapped children may be more marked than developmental lags in other domains. A review of the literature indicates that withdrawn behavior has been associated with various handicapping conditions such as language delays (Lovell, Hoyle, & Siddal, 1968), deafness (Gregory, 1976), cerebral palsy and other physical handicaps (Hewitt, 1970), learning disabilities (Bruininks, 1978), emotional disturbance (Morgan, 1977), mental retardation and sensory impairments (Strain, 1980). Further, the observational studies of handicapped children in integrated classrooms reviewed earlier have clearly indicated that handicapped children demonstrate a lower level of interactive behavior than do their nonhandicapped peers (e.g., Porter et al., 1978). The results of observations in several Alberta preschool programs were generally consistent with the research literature: for example, it was reported that handicapped children spent almost half of their time in isolate or parallel play, and engaged in onlooker or cooperative play

only 12.5 per cent of the time (Kysela & Barros, 1983).

As previously discussed, increasing concern over the problem of social withdrawal has prompted the development of numerous intervention strategies. After a review of the efficacy of these procedures, the decision was made to train instructional staff in the use of peer-mediated strategies. As the advantages of these strategies were more thoroughly discussed earlier in this review, the rationale shall only be briefly restated:

1. Peer-mediated strategies require less active teacher involvement, and can therefore be more easily incorporated into the existing program schedule.

2. Peer-mediated strategies have been associated with direct treatment gains equal to, or greater than those associated with adult-mediated procedures. Further, the use of adult-mediated strategies have not been successful in developing the extended social interaction patterns characteristic of the socially competent child.

3. It has been demonstrated that even preschool age children can be reliably trained to act as therapeutic change agents.

4. Although results are somewhat equivocal, research to date indicates that higher levels of generalization and maintenance of behavior change are associated with peer-mediated strategies.

Objectives of the Inservice

On the basis of the preceding rationale, this inservice module was designed to achieve the following objectives:

1. The rate of verbal and/or motoric behaviors which function to initiate social interaction directed towards the handicapped child by his/her nonhandicapped peers will increase.

2. The rate of verbal and/or motoric behaviors which function to initiate a social interaction emitted by the handicapped child will increase.

3. The rate of social behaviors exhibited by the nonhandicapped children during interactions with the handicapped child will increase.

4. The rate of social behaviors exhibited by the handicapped child will increase.

5. The frequency of adult praise contingent on social interaction between children outside structured interaction episodes will increase.

Content of Inservice Module

In order to achieve the objectives of the inservice, the following strategies were taught to the program staff:

Objective #1 & #2:

The rate of verbal and/or motoric behaviors which function to initiate social interaction directed towards the handicapped peers will increase.

The rate of verbal and/or motoric behaviors which function to initiate a social interaction emitted by the handicapped child will increase.

A) Peer Initiation Training: This component of the inservice package was based on the procedures used by Strain and his colleagues (for a review, see Strain & Fox, 1981), who have conducted a series of studies investigating the functional effects of an increased level of social initiations on the social behavior of children exhibiting a wide variety of handicapping conditions. It has been repeatedly demonstrated that this procedure results in an immediate increase in the target child's responses to initiations. As well in many cases, the level of positive initiations emitted by the handicapped child also increased (Strain et al., 1981). Further, of all of the various peer mediated strategies available, this procedure is the only one which has been applied successfully to children with severe language, cognitive and social delays.

The staff were provided with specific "lesson plans" which were to be used in the instruction of the peer trainers (see Appendix B). These plans, based on the direct teaching model used by Hops and his colleagues (1978) provided a systematic guide for teaching the following target behaviors:

1. "Begin" – (verbally initiating an interaction). It has been suggested (Kerr & Strain, 1979) that delayed children in the peer initiation studies are responsive to verbal initiations because the peer confederates are able to adjust the complexity of their verbal utterances to match the handicapped child's level of comprehension. Further, naturalistic–observation studies have reported that children do adjust the length and complexity of their utterances to match the comprehension level of less sophisticated peers (Guralnick & Paul–Brown, 1977).

2. "Begin with materials" – This second method of initiating an interaction was particularly targeted for use with pre–verbal subjects who would lack the ability to respond to a verbal initiation. However, this strategy was taught to all peer–trainers as research has demonstrated that motor–gestural behaviors have a high probability of being followed by a

positive response (Tremblay, Strain, Hendrickson, & Shores, 1981).

3. "Answer" – (responding to an initiation). Given that peer initiation training has been associated with an increase in the subject's level of initiations (Strain & Fox, 1981), this behavior was taught in an attempt to increase the probability that the peer trainer would respond to the initiations of the subjects whenever they occured through-out the school day.

4. "Turntaking" – (strategies for maintaining an interaction). This strategy was included to prompt the development of longer and longer interaction episodes, which are characteristic of the socially competent child (Hops et al., 1977, Strain & Fox, 1981).

5. "Helping" – (using physical assistance to aid the handicapped child to take his turn). This strategy was optional, and targeted for children exhibiting severe motoric delays which would prevent them from successfully completing their turn in an action sequence.

The training package also included guidelines concerning the selection of peer trainers, based on the suggestions given by Strain et al., (1981), and Hops et al. (1978). It was suggested that, if possible, two or three peer confederates be selected for training, both to increase the probability that a peer trainer is consistently available, as well as to foster across-child generalization (Strain et al., 1981). Staff were also given suggestions concerning the selection of play materials which was based on research showing that the type and amount of play materials will influence the nature and duration of social interaction (Parten, 1932; Quilitch & Risley, 1973; Tremblay et al., 1981).

Finally, specific procedures were outlined for starting the peer initiation sessions each day (See Appendix B). These procedures were considered to be necessary on the basis of research which indicated that there was no sustained change in the peer trainer's behavior in the absence of specific instructions to initiate play (Hendrickson, Strain, Tremblay, & Shores, 1982). Once the session had begun, staff were instructed to deliver social reinforcement for any of the trained responses. This requirement was based on the research reported by Hops et al., (1977) who found that reinforcement of all components of an interaction maximally facilitated social interactions. Further:

> (a) it allowed all interactive behavior to contribute to reinforcement, (b) it was most accomodating to individual interactive styles, (c) it was easiest to implement, allowing reinforcement to be delivered, nondisruptively, at various points during the interactive chain, and (d) it resulted in the most natural interactive topography (Hops et al., 1977, p. 12)

Finally, provisions were outlined for the reinforcement of the peer trainers, which was based on the procedures used by Hendrickson et al., (1982). "The reward system was built into the program to provide a tangible outcome to this confederate who had not previously displayed initiation behaviors towards the subjects and who was not likely to be reinforced by their responding alone" (Hendrickson et al., 1982, p. 332).

Objective #3:

> The rate of social behaviors exhibited by the nonhandicapped children during interactions with the handicapped child will increase.

It is hypothesized that, as a result of peer initiation training, the amount of time the handicapped child spends in social interaction with his/her nonhandicapped peers will increase. However, in attempt to widen the number of nonhandicapped children with whom the child interacts, the program staff were instructed to use Joint Task Activities. This strategy was a slightly modified version of the procedure developed by Hops and his colleagues (1978) as part of the PEERS program. This strategy requires the teacher to structure appropriate opportunities for the target child to interact with a different nonhandicapped peer on a daily basis. This procedure was selected as it had been repeatedly demonstrated to be an effective method of increasing social interaction rates of withdrawn children (Hops et al., 1978).

The Joint Task Activity as outlined in the PEERS program (Hops et al., 1978) had two main requirements: 1) turn taking, and 2) verbal interaction. Given that a number of handicapped children at a preschool level are at a pre-verbal level of language development, this last requirement was modified so that the level of communication required was matched to the current mode used by the child i.e. actions, vocalization, words or phrases (MacDonald, 1982).

The teachers were instructed to schedule these activities at least once daily, for an average of 10 minutes. However, it should be noted that the actual duration requirements were tailored to accomodate the individual capabilities of the handicapped child. The staff used the provided class list in order to ensure that each nonhandicapped peer was selected at least once to participate in the Joint Task. Additional information concerning procedures recommended for the selection of appropriate activities, materials to be used

and reinforcement procedures can be located in Appendix B.

Objective #4:

The number of social behaviors exhibited by the handicapped child will increase.

The final strategy introduced required the program staff to deliver social reinforcement contingent on social interaction between students outside the structured interaction episodes. The rationale for this strategy was based on research literature which suggests that the peer initiation strategy has been associated with some limited degree of generalization outside the training episodes (i.e. Strain, 1977). Given that teacher praise has been repeatedly demonstrated to be an effective means of increasing rates of social interaction (e.g., Allen et al., 1964; Buell et al., 1968), this strategy was introduced in order to facilitate the maintenance of generalized changes in social behavior.

Presentation of Content

See Table 2 for instructional methods used in the presentation of inservice content.

Generalization to the Classroom

As with the first inservice module, inservice personnel made a minimum of two classroom visits in order to monitor the generalization of inservice training to the classroom settings. Two specific strategies were employed to facilitate this generalization: (a) verbal feedback coupled with social praise (i.e. Cossairt et al., 1974); and (b) self-recording of frequency of social praise (i.e. Herbert & Baer, 1972).

Evaluation

The effects of the inservice training were evaluated through the direct observation of the social interaction patterns in the classroom. Naturalistic observations have been used extensively in the study of social interactions in integrated classrooms (e.g., Porter et al., 1978) and to evaluate the effects of social skills training (e.g., Ragland et al., 1978). The selection of this method of evaluation was based on the following rationale:

Table 2

Use of Peers to Facilitate Social Interaction:

Presentation of Content

Content	Method of Presentation
I Peers as Change Agents	
A. Rationale: Social Skills Training	Lecture/Visual Aids
B. Why use Peers?	Lecture/Visual Aids
II Joint Task Activities	
A. Introduction	Lecture
B. Selection of Activity/Materials	Small group discussion: Presentation of ideas to large group
Implement Joint Task	Lecture
III Social Initiation Training	
A. Rationale	Lecture/Visual Aids
B. Selecting Trainers	Small group discussion
C. Selection of Materials	Lecture
D. Training Procedures	Role play/Corrective Feedback
E. Prompting & Reinforcement	Lecture
IV Contingent Social Praise	Lecture
V Discussion/Questions	Large Group Discussion

1) The direct observation of actual child behavior is more likely to reflect changes which occur as the result of social skills training (Bijou, Peterson, & Ault, 1968; Johnson & Bolstad, 1973; Kazdin, 1977a, 1978; Gresham, 1981). As well, observational data allow a more precise evaluation of the treatment effects than do global measures such as teacher ratings or sociometrics (Gresham, 1981). While the use of these global measures may indicate that some change in social status has occurred, it is not possible to delineate the behavioral processes which have prompted change in the child's status, or to determine how change is maintained (Bruininks et al., 1974).

2) The use of sociometric devices to evaluate the effects of social skills training has also been criticized on the basis of their questionable reliability and validity (Bruininks et al., 1974). It has been demonstrated that sociometric devices lack adequate test-retest reliability when used with preschool children (e.g., Dunlop et al., 1980) and are often unrelated to actual social behaviors in the classroom (Dunlop et al., 1980; Goodman et al., 1972; Gottlieb & Davis, 1973).

3) Direct observations of social behaviors can be repeatedly conducted over time, which allows the inservice personnel to evaluate the variability in social behavior and monitor trends in patterns of responses. Sociometric devices may become reactive if used repeatedly, which prohibits their use for the evaluation of treatment effects over extended time periods (Gresham, 1981).

4) The observational code to be used assesses operationally defined individual behaviors rather than global constructs. Consequently, minimal inference is required when determining what the obtained data represent (Foster & Ritchey, 1979).

5) Naturalistic observation allows the researcher to assess the antecedents and consequences of specific behaviors. The examination of such factors can provide valuable information for the design and/or modification of the social skills training procedures (Gresham, 1981).

It must be noted that naturalistic observation methodology has many potential drawbacks. The reliability of observational data, which is crucial to the adequate evaluation of treatment effects, can be threatened by such factors as observer bias, observer drift, or the reactivity of the measurement process (Johnson & Bolstad, 1973). However, the extensive research which has investigated factors which influence the reliability of

naturalistic observations provide guidance concerning precautions which can be taken to minimize potential problems (Foster & Ritchey, 1979). The specific procedures which were used in the evaluation of this module will be discussed in Chapter four.

Finally, it should be noted that observational data which measures the rate of occurance of specifically defined social behaviors has been criticized as lacking social validity: i.e. are the behaviors measured critical to adaptive social functioning (Foster & Ritchey, 1979). One method of establishing the social validity of behaviors targeted for observation and/or treatment involves surveying clients or community members concerning their assessment of the importance of the behaviors (Kazdin, 1977b; Wolf, 1978). Others have attempted to establish the importance of specific social behaviors via correlation to other criterion measures, such as sociometric ratings (Gottman, Gonso, & Rasmussen, 1975; Hartup, Glazer, & Charlesworth, 1967), or achievement tests (Cobb, 1972).

The use of interaction rate in the preschool settings as a measure of treatment effectiveness has been socially validated by Greenwood, Walker, Todd, and Hops (1979), who demonstrated that children demonstrating low interaction rates were judged by their teachers as being less verbal in their interactions, less socially skilled and demonstrating more social behavior deficits than children with higher rates. Further, low rate interactors exhibited behavior patterns similar to those reported for sociometrically defined isolate children (Greenwood, Todd, Hops, & Walker, 1982). As a result, it would appear that observational methodology is a valid technique for the assessment of social withdrawal in children (Greenwood et al., 1982).

G. Summary

The placement of handicapped children into regular preschool settings has become an increasingly popular educational alternative in the last decade. The growing recognition of the importance of early intervention as a means of preventing and/or ameliorating handicapping conditions coupled with the ideological and philosophical perspectives which advocate education in the least restrictive setting provided considerable impetus for the devleopment of integrated preschool services. Further, integration has been advocated on the basis of its supposed positive impact on the handicapped child and his/her parents,

the nonhandicapped peers and their parents, the school personnel and the community at large.

However, as was indicated in this review of the literature, the implementation of integrated preschool programs are well in advance of any substantive empirical evidence concerning the efficacy of these programs. Indeed, it is becoming increasingly clear that the mere physical placement of a handicapped child in a regular program is insufficient to achieve the goals of integration. In fact, evidence exists that suggests that, in the absence of systematic preparation and planning, the presence of handicapped children can result in effects which are entirely contrary to the aspirations of those implementing such programs.

As a result, researchers have paid increasing attention to delineating specific factors which appear to facilitate the effective integration of a handicapped child into a regular preschool program (e.g., Guralnick, 1981; Kysela & Barros, 1983). There appears to be a general consensus that the skills and competencies of the instructional staff are a critical factor in successful integrated programs. Staff must have the ability to both meet the unique educational needs of the child as well as facilitate maximal temporal, social and instructional integration.

Unfortunately, it has been demonstrated that the majority of the teachers currently working in integrated settings do not feel that they have the skills necessary to meet the unique needs of their students. As a result, the provision of some type of systematic training program for those currently working in the field would appear to be critically important. The preceding discussion has presented two inservice modules which have been developed in an attempt to train staff to develop the necessary competencies to: 1) facilitate the development of handicapped child's communicative abilities, and 2) use peers as therapeutic agents to facilitate social interaction between the handicapped and their nonhandicapped peers.

The literature investigating the effects of staff training has provided specific guidelines and procedures which were incorporated into the design of these inservice modules as a means of maximizing the probability that this training will have an impact on the staff's behavior in the classroom. However, it is clear that the only way to accurately evaluate the efficacy of the training is to measure actual staff performance in the field.

Consequently, in this study, naturalistic observations of staff-child and child-child interaction patterns were conducted in order to directly measure the effects of the inservice modules presented. Chapter three discusses the rationale and the specific research questions which were investigated, while the methodology used to answer these questions are presented in Chapter four.

III. Rationale

As highlighted in the introduction and literature review, the skills and competencies of the instructional staff are a crucial ingredient in the successful integrated preschool program. While inservice training is widely advocated as a viable means for providing the necessary training for staff already in the field (e.g., Kysela & Barros, 1982), descriptions of effective training programs are rarely found in the research literature (Browder, 1983). However, the research literature on staff training previously discussed provides some guidance concerning effective means of designing and implementing inservice programs which can increase the probability that newly acquired skills will generalize to the classroom.

It is clear, however, that systematic observation of actual changes in staff behavior, as well as the resulting changes in child behaviors, is the only method of effectively evaluating the impact of inservice training upon the integration process. Therefore, in the present study, repeated observations of the behaviors of the instructional staff, the handicapped children and the nonhandicapped peers were conducted within the classroom setting in order to assess the impact of the two inservice training modules on the staff-child and child-child interaction patterns. The discussion of the rationale and specific research questions as they relate to each of the training modules follows.

A. Inservice Module #1: Ecological Teaching Strategies

As discussed by MacDonald and Gillette (1982), the ECO model is based on the assumption that "if a child's language is to improve, major changes must occur in three places, the child's own communication, the communication of his SOs (significant others), and the interactions and conversations between them" (p.3). More specifically, it is suggested that the training of staff in the use of specific ecological teaching strategies will result in observable changes in the handicapped child's communicative behavior as well as in the interactions and conversations between the staff and the child. Consequently, the objectives of the inservice training module, as previously outlined, reflected this expectation for change in staff and child behaviors, as well as in the staff-child interaction patterns.

To briefly review, the purpose of the inservice module was to instruct staff in specific strategies which could be used to both develop and maintain turntaking exchanges during their interactions and conversations with the handicapped child. Firstly, imitation of the child's behavior was presented as one strategy which can be used to begin a turntaking exchange. Secondly, the use of signals or physical prompts to ensure the child takes his/her turn were suggested as methods for facilitating the development of longer and longer turntaking exchanges. Finally, the importance of matching the child's mode of communication during the turntaking exchange was stressed.

The specific research questions which this study sought to answer were therefore related to the determination of the degree to which the objectives of the inservice module had been realized:

1. As a result of training, was there a significant increase in the rate of turntaking exchanges between the instructional staff and the handicapped child?
2. As a result of training, was there a significant increase in the rate of the instructional staff's use of the ecological teaching strategies:
   a. Imitation
   b. Signal
   c. Physical Prompt
3. As a result of training, was there a significant increase in the rate of turns taken by the staff when they interacted with the handicapped child?
4. As a result of training, was there a significant increase in the rate of turns taken by the handicapped child when interacting with the instructional staff?
5. As a result of training, was there a significant increase in the length of the turntaking exchanges between the instructional staff and the handicapped child?

Operational Definitions

For the purpose of this study, the dependent variables were defined as follows:

1. Turntaking exchanges: a sequence of socially related behaviors between two participants, which are not separated by the occurance of more than three consecutive coded behaviors emitted by one participant. Further,

both participants must employ the same mode of communication within the exchange.

Communication Modes were classified according to the following criteria:

a. Motor-gestural: use of nonlinguistic motor-gestural behaviors.

b. Vocalization: use of nonphonemic sounds ("h"); phonemic one syllable sounds ("ee"); or phonemic multi-syllable sounds ("ee-oo").

c. Single word: use of single words.

d. Phrases: use of phrases of two or more words.

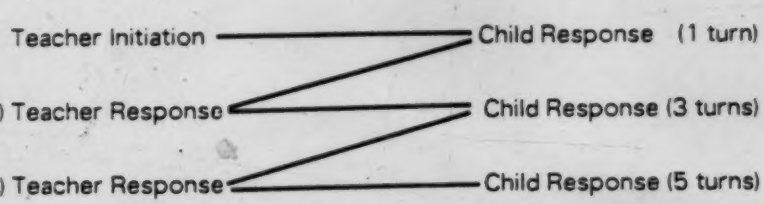
2. Imitation: overt repetition of a motor-gestural behavior, vocalization, single word or phrase. Imitated utterances must contain all or part of the modeled utterance, with no changes except the deletion of morphemes: i.e. "bah" for "ball" or "reh bah" for "red ball."

Signal: a motor-gestural behavior, vocalization, single word or phrase that was apparently intended to elicit a response from another person, which follows a previously unsuccesssful attempt.

Physical Prompt: physical contact intended to: a) assist other to complete specific activity, or b) stop other's action.

3-4. Turn: socially related motor-gestural, vocal or verbal behavior emitted by an individual within a turntaking exchange.

5. Length of Turntaking Exchange: The length of the turntaking exchanges was determined by counting the number of responses contained with the interactive chain. For example:



B. Inservice Module #2: Training Nonhandicapped Peers

As previously discussed, one of the major assumptions underlying the rationale for preschool integrated services is that interactions with nonhandicapped children will reinforce handicapped children's prosocial behavior as well as skills in other developmental areas. Given that observational research in integrated preschool settings has revealed that in the absence of systematic intervention, little cross-group interaction actually occurs, this inservice module sought to instruct staff in the use of the specific

strategies which have been demonstrated to facilitate peer interaction. As with the previous module, the inservice objectives reflected the expectation of change in the behavior of the instructional staff, the handicapped child and his/her nonhandicapped peers as well as the patterns of child-child interactions.

To briefly review, the following strategies were presented to the instructional staff. First, Peer Initiation Training, in which one or more of the nonhandicapped peers are directly taught to initiate and maintain social interaction with the handicapped child. Secondly, Joint Task Activities, which are teacher-structured activities which allow opportunities for the handicapped child to interact with a different peer daily. Finally, the delivery of social praise contingent on social interaction was introduced as a means of facilitating the maintenance of generalized changes in social behavior.

The specific research questions which this study sought to answer were therefore related to the determination of the degree to which the inservice objectives had been realized:

1. As a result of training, was there a significant increase in the rate with which the nonhandicapped peers initiated (using verbal or motoric behaviors) social interactions with the handicapped child?
2. As a result of training, was there a significant increase in the rate of verbal and/or motoric behaviors which function to initiate an interaction emitted by the handicapped child?
3. As a result of training, was there a significant increase in the rate of social behaviors exhibited by the nonhandicapped peers during interactions with the handicapped child?
4. As a result of training, was there a significant increase in the rate of social behaviors exhibited by the handicapped child?
5. As a result of training, was there a significant increase in the frequency of adult praise, which was contingent on social interaction between children outside the structured interaction episodes?

Further, two additional research questions were posed which did not have a direct relationship to the objectives of this inservice module. These questions sought to assess the rate at which the handicapped child and his/her nonhandicapped peers engaged in mode-matched turntaking exchanges, as well as the determination of the length of those exchanges. The rationale for the inclusion of these research questions was based on two

major factors. First, research clearly indicates that environmental factors can have a significant impact on the language learning process of the young child (Lederberg, 1980), and therefore, the social interactions between the handicapped child and his/her peers can have a significant impact on the development of communicative competence (Guralnick, 1981). MacDonald (1982) has placed considerable emphasis on the importance of matching the communicative mode during such interactions and conversations as a means of maximally facilitating language development.

Secondly, an analysis of the speech of preschool-aged nonhandicapped peers during social interactions with developmentally delayed children indicated that different adjustments in speech patterns were made, depending on the functioning level of the partner in the interaction (Guralnick & Paul-Brown, 1977). Therefore, the following research questions sought to assess whether mode-matched turntaking exchanges occurred during social interactions between the subjects and their nonhandicapped peers, as well as the length of these exchanges.

6. As a result of training, was there a significant increase in the rate of turntaking exchanges between the handicapped child and his/her nonhandicapped peers?

7. As a result of training, was there a significant increase in the length of the turntaking exchanges bewteen the handicapped child and his/her nonhandicapped peers?

Operational Definitions

For the purpose of this study, the dependent variables were defined as follows:

1-2. Initiations: a successful or unsuccessful behavior directed towards another person through nonlinguistic motor-gestural behavior, vocalization, single word or phrase that was not apparently elicited by another person's immediately preceding motor-gestural behavior, vocalization, word or phrase.

3-4. Social Behaviors: This category represented the total number of social behaviors which had been emitted by each participant within the context of the social interactions including:

a. Initiations: as defined above.

b. Responses: a motor-gestural behavior, vocalization, single word or phrase that was apparently elicited by another person's motor-gestural behavior, vocalization, single word or phrase.

c. Imitation: as defined above.

d. Signal: as defined above.

e. Physical Prompt: as defined above.

5. Turn-Taking Exchanges: as defined above.

6. Length of Turn-Taking Exchanges: as defined above.

7. Social Praise: any motor-gestural, vocal or verbal behavior emitted by instructional staff contingent on social interaction between handicapped and nonhandicapped children, which functions to reinforce the social interactive behavior.

Chapter four presents the methodology which was used in this study and describes in detail the observational system which was used in the collection of data to answer these research questions. The results of the data collection process are presented and described in Chapter five.

IV. Methods

A. Subjects

Subjects in this study were recruited from both urban and rural Early Childhood Services programs. Children designated as research subjects had been previously identified as having special needs, and programs were therefore receiving supplementary funding under "Category A" classification, for students with mild to moderate handicaps, or "Program Unit Grants" (PUG) for students with more severe handicapping conditions. Using this criterion, 8 students from 3 urban programs and 8 students from 4 rural programs were selected. During the third week of the baseline phase of the study, a subject in one of the urban centres was transferred to another program, reducing the number of urban subjects to 7.

The subjects under investigation ranged in age from 3 years 6 months to 7 years 4 months, and exhibited a wide range of handicapping conditions including developmental delays, motoric disabilities, visual impairment, articulation disorders and behavior disorders. In general, it was observed that students enrolled in urban centres were more often at the appropriate chronological age for enrollment in a kindergarten program, and demonstrated mild to moderate handicapping conditions. Rural subjects were characterized by a wider range of chronological ages, and many exhibited more severe and/or multiple handicapping conditions, as indicated by the higher proportion receiving funding under the PUG designation. Table 3 lists the specific characteristics of the research subjects.

B. Settings

All six preschool programs under study were funded by Early Childhood Services and therefore met the conditions for approval as established by the provincial Department of Education. The three urban programs' were located within the city of Edmonton, Alberta, Canada and the rural programs were located within a 200 kilometer radius from Edmonton. Two of the rural programs were located in centres with a population of 5000 or less. The third rural program was located within the Red Deer, Alberta, Canada city limits, but served children who were transported from the surrounding rural area.

Table 3 Subject Characteristics

Urban Programs

Program Number	Child Number	Cat. Fund.	C.A.	Sex	Primary Handicap	Secondary Handicap	McCarthy GCI #1	McCarthy GCI #2
01	01	A	5-05	M	Developmental Delay	Behavior Disorder	<50	<50
01	02	A	6-03	F	Mental Retardation (Microcephaly)		<50	<50
01	03	A*	5-11	M	Articulation Disorder		67	88
02	04	A	5-05	M	Developmental Delay (Neurofibromatosis	Articulation Disorder	66	82
02	05	A	5-06	F	Developmental Delay	Language Delay	63	69
02	06	A	5-03	M	Developmental Delay	Language Delay	70	76
03	07	PUG	6-09	F	Mental Retardation (Down's Syndrome)		<50	<50

* Changed to PUG during Week 16

Table 3 Subject Characteristics (continued)

Rural Programs

Program Number	Child Number	Cat. Fund.	C.A.	Sex	Primary Handicap	Secondary Handicap	McCarthy Scores #1	McCarthy Scores #2
04	08	PUG	5-07	M	Developmental Delay	Language Delay	87-88	111
04	09	PUG	6-03	F	Visual Impairment		<50	<50
05	10	PUG	7-04	M	Cerebral Palsy		8-12 mo*	8-12 mo*
05	11	PUG	3-06	F	Cerebral Palsy		6-16 mo*	6-16 mo*
06	12	PUG	4-11	M	Developmental Delay	Behavior Disorders	<50	<50
06	13	PUG	4-03	M	Cerebral Palsy		7-15 mo*	7-15 mo*
07	14	PUG	5-06	M	Developmental Delay	Expressive Aphasia	89-90	94
07	15	A	5-03	F	Developmental Delay	Language Delay	<50	<50

* Range of developmental ages achieved on Developmental Profile

With the exception of the latter centre, where children attended class for 2 full days weekly because of the busing requirements, all programs ran half-day programs for their students. Each classroom was staffed by one certified ECS teacher and at least one instructional aide. Staff/student ratios varied from 1/4 to 1/8 in the different centres. Table 4 contains specific information concerning the characteristics of each program.

C. Research Design

This investigation employed a time series research design, which has been defined by Campbell and Stanley (1966) as:

> The presence of a periodic measurement process on some group or individual and the introduction of an experimental change into this time series of measurement, the results of which are represented by a discontinuity in the measurements recorded in the time series (p. 37).

A discussion of the rationale for the selection of this design follows.

First, while it is acknowledged that classical research designs which employ random assignment of subjects to treatment and control groups offer greater control over confounding variables (Campbell & Stanley, 1966), ethical considerations precluded the withholding of a potentially beneficial treatment from the children functioning as a control group (Glass, Willson, & Gottman, 1975). Second, given the limited number of "special needs" children available for study, and the heterogeneity of the target population, it is unlikely that the random assignment of available subjects would ensure equivilence between the groups (Bricker & Littman, 1982). Finally, given the realities of program implementation, the differences in extraneous variables such as curriculum or teacher characteristics preclude the possibility of making valid comparisons across "treatment" or "no-treatment" groups in different settings (Sheehan & Keogh, 1982).

With the lack of control group, the alternative to this design would be a single experimental unit, evaluated on a pre-posttest basis. However, use of this design gives insufficient information to determine any type of causal relationship. The repeated measures characteristic of a time series design will allow the researcher to rule out many of the plausible rival hypotheses which plague the former design (Campbell, 1963).

Secondly, time series research designs are more capable of representing the complex nature of treament effects demonstrated with human subjects. An analysis of

Table 4

Program Characteristics

Program Number	Location	Number Teachers	Number Aides	Class Size	# Hand Children	Staff/ Student Ratio
01	Urban	1	1*	11	3	1/5
02	Urban	1	1	15	3	1/8
03	Urban	1	2	11	2**	1/4
04	Rural	1	1	12	2	1/6
05	Rural	1	2	15	2	1/5
06	Rural	1	2	18	2	1/6
07	Rural	1	2	15	2	1/5

* Additional aide hired during Week 16
** One student transferred during Week 3

the repeated measures over time gives an unique perspective on the changing character of the treatment effects: i.e. their immediacy and duration. As pointed out by Glass and his colleagues (1975), the true value of an intervention should not be judged at some arbitrary end-point, but by whether "the effect occurs immediately or is delayed, whether it increases or decays, whether it is only temporarily or constantly superior to the effects of alternate interventions" (p. 5). As well, if the treatment effect is described by some type of curve, the researcher using a pre-posttest paradigm would obtain differential, and possibly misleading results, depending on when the posttest measure was taken (Gottman, 1973).

In addition, data collected in time series designs give a continuous record of the experimental variables over the entire time period. When coupled with a description of potentially relevant non-experimental variables, the variability seen in the time series data can serve as a valuable source of post-hoc hypotheses (Glass et al., 1975). While no definitive statements could be made concerning the variables acting on the data, potential avenues of research could be revealed (Hersen & Barlow, 1973).

Time series designs are also amenable for use in applied settings. The design can be readily inserted into existing programs, causing minimal inconvenience to those asked to participate (Gottman, McFall, & Barnett, 1969).

Single Subject Design

Time series designs are also appropriate for the evaluation of treatment effects on single subjects. The decision to evaluate individual reactions to treatment was based on the following rationale. It was clear that, given the small number of accessible subjects and the heterogeneity of the target population, the within-group variability which would be present in any group of students would make the valid interpretation of results very difficult (Bricker & Littman, 1982). For example, it was found that children designated as having "special needs" in an ECS programs in the province exhibited a wide variety of handicapping conditions such as developmental delays, motoric disabilities, sensory impairments or behavior disorders, which ranged from very mild to severe in their effect on the child's functioning (Kysela & Barros, 1983).

When using group designs, the results are averaged so that possibly meaningful individual variations are obscured (Glass et al., 1975). Even if an experimental group performs statistically better than a control group, it is possible that some individuals have not changed, or may have deteriorated (Leitenberg, 1973). With group averages, one is unable to hypothesize which individual characteristics may be correlated with improvement or deterioration. Such findings are of particular interest to those in applied settings, who must make decisions as to which treatment may be suited to a specific individual (Birnbrauer, Peterson, & Solnick, 1974).

Finally, the use of single subjects allow the researcher to more easily determine the magnitude of the observed change. As a result, it is easier to decide whether the treatment effects have any real clinical significance (Gottman, 1973).

Multiple-Baseline Across Subjects

In many time series designs, the effects of the treatment are replicated with a single subject through the alternate application and withdrawal of the treatment (ABAB design). If the same experimental effect can be observed in the separate treatment phases, the strength of the inferences made concerning the intervention is increased as many plausible rival hypotheses accounting for the behavior change can be ruled out (Kazdin, 1973). However, the use of a withdrawal design was not considered to be a viable alternative in this study. There appeared to be a high degree of probability that a "carry-over" effect would be evident in a withdrawal phase, which would preclude the possibility of retrieving the original baseline levels (Glass et al., 1975). For example, in the case of the first inservice module, if the staff has learned to respond to the behavior of the handicapped child in a specific manner, they may not have been able to revert to their original manner of interacting with the handicapped child (Hersen & Barlow, 1976).

In addition, the behavior changes which have been produced may be reinforced and maintained through extra-experimental variables which are not under the control of the investigator (Baer, Wolf, & Risley, 1968). For example, it has been demonstrated that the effects of social skills training are maintained after the withdrawal of the programmed intervention. The social behavior of the subject becomes "trapped" into the existing social network, and the naturally occurring reinforcers maintain the increased levels of social

interaction (Baer & Wolf, 1970). If it was found that the behaviors of interest did not reverse, no definitive conclusions could be made concerning the treatment effects, since many rival hypotheses could be considered as plausible explanations (Kazdin, 1978).

Requiring that the staff repeatedly apply and then discontinue treatment greatly increases the demands placed on the staff by the study, and they may have been reluctant to cooperate with such a procedure (Hersen & Barlow, 1976). Further, it may not be possible to reliably manipulate the behavior of the young peers acting as behavior change agents. As well, if the intervention strategies resulted in change perceived to be beneficial by the staff, they may have resisted suggestions to withdraw treatment (Hersen & Barlow, 1976)

It has been suggested that the use of very short experimental phases will facilitate the achievement of a reversal of the experimental effects (Bijou, Peterson, Harris, Allen, & Johnson, 1969). However, this approach would not appear to be appropriate for use in this investigation, as it would appear axiomatic that inservice training would be considered to be effective only if the effects could be shown to be non-transient in nature. Therefore, if the treatment is designed to achieve relatively permanent changes in behavior, such effects could not be evaluated through the use of a reversal design (Kazdin, 1973).

As a result, a multiple-baseline across subjects design was employed in this investigation (Baer et al., 1968). In this design, baseline data was collected on the dependent variables for each subject for a period of three to four weeks. As this time, the first inservice module was presented, and staff were instructed to implement the strategies presented during the inservice training with one subject in their classroom, while baseline conditions were continued for the other subject(s). After a two or three week interval, the treatment was applied to the remaining subject(s). This same procedure was repeated following the presentation of the second module. Although the effects of the treatment variables are not directly demonstrated, as is possible in the reversal design, the effects of the treatment can be inferred from the analysis of the data obtained on untreated subjects (Hersen & Barlow, 1976).

Further, it should be noted that the choice of the multiple-baseline across subjects was also based on the following issues. The use of this design ameliorates ethical

concerns associated with the withdrawal or withholding of a potentially beneficial treatment from the research subjects which would be necessary if alternate designs were used (Glass et al., 1975). Although the implementation of the intervention was delayed for some subjects, the time period involved was relatively brief.

There is a general consensus in the research literature that the replication of treatment effects across three or four subjects is sufficient to adequately demonstrate the effects of an experimental treatment (Hersen & Barlow, 1976). However, the replication of the treatment effects across the fifteen subjects in this study strengthens the external validity of the investigation, by allowing an evaluation of the generality of the treatment effects across different individuals (Hersen & Barlow, 1976). Further, an analysis of the treatment effects demonstrated across different subjects may assist in the formulation of plausible hypotheses concerning the interaction of individual characteristics and the treatment strategies. Although no definitive conclusions could be reached, due to other extraneous variables which may have accounted for any observed differential effects, specific avenues for future systematic research investigating these factors may be indicated (Leitenberg, 1973).

The following section describes, in detail, the specific instruments used and the manner in which they were administered.

D. The Preschool Observation System

The observation system employed in this study is a modified version of the Preschool Observation System devised by Kysela & Barros (1983). This revised system utilized 5 distinct behavior categories which allowed the continuous recording of the behaviors of the focal handicapped child and the behavior of the instructional staff (adults) and the nonhandicapped peers as they interact with the target child. The scoring categories used can be defined as molar categories, which "combine a number of actions, directions and objects of behavior into generic classes of behavior defined by the function or outcome of the motor actions" (Sackett, Ruppenthal, & Gluck, 1978, p. 4). In order to reduce as far as possible the amount of interpretation and judgement used by the observers when coding, complete definitions of each categories were provided.

Further, the interactive behaviors were classified according to the mode of communication used by the participant during the interaction (i.e. motor-gestural, vocalizations, single words, phrases). Finally, the system allowed for the recording of the type or level of play exhibited by the child when he/she was not involved in social interactions with others in the classroom environment. The operational definitions of the specific behavior categories, communicative modes and general play conditions employed in this study are listed in Table 5.

There are numerous methods which can be used to record observational data, including voice recording, event recorders, digital keyboards and other electronic devices (Holm, 1978). In this investigation, practical considerations dictated that observers manually record behaviors using prepared data sheets. Each sheet contained three separate columns, one of each designated for the behaviors of the staff, focal child and peers. Within each column a series of blocks, each containing the 9 letters representing each behavior category were given. The occurance of the codable behaviors was indicated by marking the appropriate letter with a diagonal slash. If no interactive behaviors occurred during any 10 second interval, a horizontal line was drawn across all three columns and the number designating the observed play behavior recorded. The format of the data sheet employed by the observers is illustrated in Figure 1.

Data collection was conducted twice weekly through live observations in the classroom settings. The decision to use live observation, as opposed to videotapes, was based on the rationale that, overall, observations in the classroom provided the optimal opportunity to collect the information necessary to answer the research questions posed. For example, not only does the use of videotape require the use of expensive equipment, it is often awkward to adequately follow the focal subject. As well, observers in applied settings are more able to perceive behaviors that may be missed in a taped presentation. Finally, despite the opportunity to repeatedly view a situation through the use of videotapes, it has been demonstrated that minimal amounts of information are missed through the use of live observations (Sackett et al., 1978).

Table 5

Preschool Observation System

Behavior Categories	Definition
"B"=Initiation	– a successful or unsuccessful behavior directed towards another person through nonlinguistic motor–gestural behavior, volalization, single word or phrase of two or more words that was not apparently elicited by another person's immediately preceding motor–gestural behavior, vocalization, single word or phrase.
"R"=Response	– a motor–gestural behavior, vocalization, single word or phrase of two or more words that was apparently elicited by another person's motor–gestural behavior, vocalization, single word or phrase.
"I"=Imitation	– overt repetition of a motor–gestural behavior, vocalization, single word or phrase of two or more words. Imitated utterances must contain all or part of the modeled utterance, with no changes except deletion of morphemes: i.e. "bah" for "ball" or "reh bah" for "red ball".
"S"=Signal	– a motor–gestural behavior, vocalization, single word or phrase or two or more words that was apparently intended to prompt a response from another person which follows a previously unsuccessful attempt.
"G"=Physical Prompt	– physical contact intended to assist other to complete a specific activity or to stop other's actions.

Modes of Communication	Definition
"A"=Motor–Gestural	– nonlinguistic motor–gestural behaviors
"V"=Vocalization	– nonphonemic sounds ("h"), phonemic one syllable sounds ("ee") or phonemic multi–syllable sounds ("ee–oo")
"W"=Single Word	– single word or sign
"P"=Phrases	– phrases containing 2 or more words.

Table 5(cont'd)

Play Conditions	Definitions
01. NonSocial	– not attending to or participating in social/educational activities. Engaged in non–constructive, non–directive, unoccupied activities, self–stimulation or inappropriate use of materials.
02. Isolate Play	– playing apart from group, making no effort to physically or verbally join the group, not concerned with what others are doing.
03. On–looker	– spectator, visually attending to the group, maintaining visual attention but not participating physically.
04. Parallel Play	– playing with his/her own materials beside or facing another child. Children are in close enough proximity that verbal interaction, mutual observation or an exchange of toys could occur (within three feet and in the same play area).

Figure 1

Data Sheet

Page: _____

Target Child: _____ School/Centre: _____

Observer: _____ Date: _____

Situation: _____ Duration: _____

Adults Present: _____

Peers Present: _____

ADULT	TARGET CHILD	PEER	ADULT	TARGET CHILD	PEER
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P
B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P	B R I S G A V W P

Reliability of Observations

As previously noted, naturalistic observations have been widely advocated and used in the investigation of treatment effectiveness, including that of inservice training. Since observational methodology was the primary measure used to evaluate the effects of these inservice modules, it was critical that factors which could adversely affect the reliability and accuracy of the system be minimized. A review of the literature investigating the use of observational methodology (Bijou et al., 1968; Johnson & Bolstad, 1973; Kazdin, 1977a, 1978), indicates that four general categories have been considered to be threats to the reliability of observational systems: 1) observer bias, 2) the complexity of the behavior code and the behaviors observer, 3) consensual observed drift, and 4) observer reactivity, or the manner in which observations are collected. A discussion of these factors, and how they were dealt with in this investigation follows.

1) Observer bias: It has been suggested that the expectancies of the observer in naturalistic observation can result in systematic or "biased" errors which can have an invalidating effect on the obtained results (Johnson & Bolstad, 1973; Kazdin, 1977a). However, although some evidence indicates that the observer's expectancy of change will influence the obtained results (Azrin, Holz, Ulrich, & Goldiamond, 1961), the general consensus in the research literature suggests that expectancies do not significantly alter the behavior of the observers (Kent, O'Leary, [illegible]ent, & Dietz; 1974; Redfield & Paul, 1976). Regardless, in order to minimize the probability of the confounding effects of observer bias the observers were not informed of the time at which the treatment was implemented, or of the type and/or direction of the desired behavior change. It should be acknowledged, however, that conspicuous changes in the classroom environment and/or staff behavior may have alerted the observers to the presence of treatment.

Further, it has been demonstrated that postive or negative feedback from the experimenter concerning the degree to which the obtained results reflect the desired effects can have a significant impact on the behavior of the observer (O'Leary, Kent, & Kanowitz, 1975). As a result, while observers were provided with feedback concerning the accuracy of their observations, they were not informed as to whether the results reflected the behavior changes desired by the investigators (Kazdin, 1977a).

2) Complexity of the coding system and the behaviors scored: As pointed out by Kazdin (1977a), the analysis of the coding system and the behaviors scored must involve a consideration of several issues. "First, complexity can refer to the number of different response categories of an observational coding system" (Kazdin, 1977a, p. 144). For example, Mash and McElwee (1974) demonstrated that observers employing a four-category observation system showed a higher level of accuracy than did observers using a system consisting of eight different categories. Therefore, for the purposes of this investigation, the minimum number of behavior categories which would allow the accurate assessment of the treatment effects were used.

"Second, complexity can refer to the number of different behaviors that are scored within a particular observational system on a given occasion" (Kazdin, 1977a, p. 144). Observations are considered to be more complex during sessions for which a high proportion of different codes are scored relative to all of the codes available. It has been demonstrated that interobserver agreement declines as the diversity of the behaviors scored within the session increases (Taplin & Reid, 1973).

Further, specific subjects may vary in the diversity of behavior exhibited, therefore affecting the number and type of categories which must be scored. Hence, reliability assessments based on the behavior of a specific subject may over- or under-estimate the agreement which would be obtained through the observations of alternate subjects (Kazdin, 1977a). Finally, the complexity of an observational system may vary across time. For example, behavior categories may be used differentially across time, if the intervention results in an increase or decrease in the frequency with which behaviors are exhibited (Kazdin, 1977a). In light of these factors, the influence of the complexity of the behavior of the subject on interobserver reliability was controlled by calculating interobserver agreement across all phases of the study and across a large percentage of the available subjects.

3) Consensual observer drift: Research has demonstrated that observers "drift" from the original definitions of behavior (O'Leary & Kent, 1973; Reid, 1970; Taplin & Reid, 1973). "Drift refers to the tendency of observers to change the manner in which they apply the definitions of behavior over time" (Kazdin, 1977a, p. 143). Further, this drift may not be reflected in the interobserver reliability assessments if the observers consistently

work together and communicate their idiosyncratic behavioral definitions, resulting in consensual observer drift (O'Leary & Kent, 1973). To minimize the probability that observers have the opportunity to develop similar variations of the original behavioral definitions, reliability assessments were conducted across different combinations of observers (Romanczyk, Kent, Diament, & O'Leary, 1973).

4) Reactivity of the Observation Process: This phenomenon can be defined as the effects which "occur when the process of observing a subject or subjects alters, either permanently or temporarily, their behavior" (Haynes & Horne, 1982, p. 370). Although behavioral observation is not always associated with reactivity (i.e. Kent, O'Leary, Dietz, & Diament, 1979), there is a general consensus in the literature that under some conditions, reactive effects do occur (Haynes & Horne, 1982; Johnson & Bolstad, 1973). These effects can have both clinical significance as well as function as a confounding influence on the internal and external validity of a study.

Although research investigating the factors which mediate reactive effects is tentative, some guidance concerning the steps which can be taken to minimize the probability and/or extent of reactive effects has been provided (Haynes & Horne, 1982; Johnson & Bolstad, 1973; Kazdin, 1973, 1977a). First, given that the use of covert observation was not feasible in the classroom setting, the obtrusiveness of the observation process was minimized by instructing the observers to refrain from interacting with the subjects (i.e. avoiding eye contact, ignoring questions, suppressing reactions to behavioral events; Bijou et al., 1968). Subjects were instructed to maintain normal routines (Haynes & Horne, 1982), and no changes in the class schedule were required to accomodate the observation process.

Finally, given the extended period of measurement, it was possible to analyze the observational data for the presence of reactive effects. For example, it has been suggested that the presence of slope, or a systematic change in behavior rate over time may be indicative of reactive effects (Johnson & Bolstad, 1973). Further, reactive effects may be associated with increased variability in the data series (Glass et al., 1975). Variability can be expected to occur in the beginning phases of the observation process, as changes in environmental conditions are frequently associated with increased variability in behavior (Sidman, 1960). Both variability and slope can be detected through the visual

inspection of the plotted data points (Glass et al., 1975), and the effects can be expected to dissipate over the extended measurement period employed in this study (Haynes & Horne, 1982).

Procedures for Data Collection:

Data was collected on each subject in this study through the use of a focal individual coding method (Sackett et al., 1978). That is, during the 10 minute sampling period, continuous real time data was collected for all of the individual behaviors of the focal child, as well as for the behaviors of the staff and peers that were directed towards the child during social interaction. Each 10 minute sampling period consisted of 5 separate two minute intervals, a total period of time which was judged as sufficient to provide a representative sample of the child's behavior. The division of the 10 minute period into two minute intervals was based on practical considerations: although each interval was recorded consecutively within the same situations, the brief time period between intervals allowed the observer to turn pages, shift positions, etc.

During the 10 minute observation sessions, observers recorded every occurance of codable behavior exhibited by the focal child, the staff and/or peers. If the child was not engaged in social interaction, the type or level of play behavior was recorded each time the child was observed to be continuously engaged in that behavior for a 10 second interval. To preclude the necessity of monitoring a clock, the observers listened to a pre-recorded tape which marked the ten second intervals, as well as the overall two minute intervals. Ear-phones were used in order to minimize the obtrusiveness of the observers.

In order to maintain standardized measurement conditions, the specific environmental conditions and the time of day measurements were taken were held constant across the total time period of the study (Hersen & Barlow, 1976). Further, observers were required to define the situation in terms of its physical characteristics (e.g., location) as well as social characteristics (e.g., number of students present in the classroom; Bijou et al, 1968). Minor changes in the physical and/or social characteristics of the situation, as originally defined at the onset of the study, were noted on the data sheets, while major disruptions (i.e. change in activity) halted data collection. The clear

definition of the situational factors was considered to be necessary to the accurate interpretation of the data (Birnbrauer et al., 1974). Further, the description of the context of the observations is necessary for an adequate determination of the generalizability of the results, as well as to ensure replicability (Kazdin, 1978).

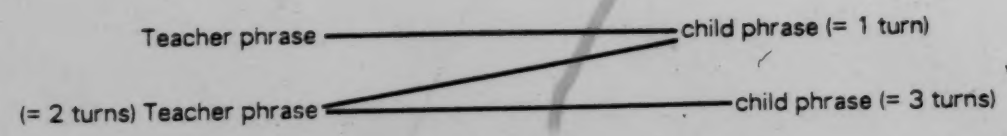
Treatment of the Observational Data

As noted, during the 10 minute observation period, observers recorded the occurance of each codable behavior, and subsequently the number of times each behavior was scored was tallied to yield a total rate of occurance for each category. However, it should be noted that, in some cases, the observers were unable to obtain the full ten minutes of observation within the standardized situation. In order to ensure comparibility across sessions, scores were adjusted to reflect the rate of occurance per minute.

In addition, the recorded behaviors were subsequently analysed to determine the rate of the occurance of turntaking behavior, as well as the length of the turntaking exchanges. Interactions between the handicapped child/peer or handicapped child/staff were categorized as turntaking exchanges if they met the following criteria:

1. The behaviors were socially related (i.e. the behaviors were part of a reciprocal relationship), and the sequence of behaviors was not separated by the occurance of more than 3 codable behaviors emitted by one participant
2. The behaviors of both participants employed the same mode of communication.

The length of the turntaking exchanges were arbitrarily calculated as increasing by one count for the occurance of each reciprocally related, mode matched behavior. For example:



Upon completion of the above procedures, the data was transcribed onto graphs and subjected to visual analysis (Parsonson & Baer, 1978). The following properties were considered in the analysis of the plotted data: the stability of the baseline scores, the amount of overlap between scores, the variability of scores across and within phases as well as the adequacy of the number of data points within each phase (Jones, Vaught, & Weinrott, 1977; Kratochwill, 1978; Parsonson & Baer, 1978). The relationship of these factors, and their impact on the conclusions made concerning the experimental interventions will be discussed during the presentation of the data in Chapter Five.

Although some authors have advocated the use of statistical procedures for the analysis of time-series data (e.g., Glass et al, 1975), the visual inspection of the data was considered to be the appropriate measure of treatment efficacy in this investigation. Of particular importance is that the use of visual analysis to make inferences concerning treatment effects lowers the probability of Type I errors, or "erroneously rejecting the null hypothesis" (Parsonson & Baer, 1978, p. 111). Visual appraisal, which requires that effects be of sufficient magnitude to be apparent to the eye, is therefore considered to be more conservative than statistical analysis (Jones et al., 1977). This was demonstrated by Glass and his colleagues (1975), who demonstrated that time-series data that was not judged to be statistically significant when visually inspected, proved to be significant when subjected to statistical analysis.

The lowered probability of Type I errors necessarily results in an increase in the probability of Type II errors (Baer, 1977). Type II errors, or "accepting the null hypothesis when it should have been rejected" (Parsonson & Baer, 1978, p. 112) occur because small effects are not as readily detected through visual analysis, and are therefore more likely to be dismissed as no effect (Baer, 1977). As noted by Parsonson and Baer (1978), Type II errors seem to be the "lesser of the two evils" (p. 112), since further investigation is likely to reveal the presence of any actually effective variables if they have been erroneously rejected.

Therefore, it would appear that although visual analysis may be less sensitive to weak or unstable treatment effects (Glass et al., 1975), this measurement technique is appropriate for use in this investigation. Only those treatment variables which have sufficient power and generality to demonstrate clearly visible and reliable changes in the

plotted response rates will be accepted as viable treatment procedures (Baer, 1977; Parsonson & Baer, 1978). Such procedures would appear to have more clinical significance for those in applied settings than those for whom effects are evident only through statistical analysis.

E. Treatment

Observer Training and Reliability:

Prior to the study, four observers received training on the Preschool Observation Code. Observers were initially instructed in the definitions of the different response categories, and then practiced using the code while observing videotapes. Further training was conducted in the actual classroom settings. During training, reliability was taken continuously and across all combinations of observers. When the mean reliability across all observers exceeded the minimum criterion of 80 per cent over four consecutive occasions (mean reliability = 83% range 81% to 87%), the collection of baseline data began.

During the study, reliability was taken approximately every 2 weeks for each observer. Two observers would simultaneously collect data on at least two children for five 2 minute segments. Reliability was calculated by dividing the number of agreements by the total of agreements plus disagreements in each two minute segment. Reliability checks were scheduled across different subjects and across all combinations of observers. Reliability was maintained at a mean of 84 per cent throughout the study, and ranged from 60 per cent – 100 per cent.

It should be noted that, although ideally covert assessment of observer reliability should be employed (Kazdin, 1977a), this procedure was not feasible in a naturalistic setting. Therefore, it is possible that the observer awareness of the reliability assessment may have resulted in higher levels of accuracy than would be characteristic of their behavior in sessions in which reliability was not assessed (Romanczyk et al., 1973; Taplin & Reid, 1973). It has also been demonstrated that reliability estimates tend to be higher when calculated by the observers than by the experimenter (Kent, et al., 1974; O'Leary & Kent, 1973). Therefore, as a precaution, the reliability of the observation data was calculated by one of the two graduate students involved in the project, rather than by the

observers themselves. Further, these estimates were re-evaluated by an individual not involved in the project, who confirmed the accuracy of the estimates presented.

Finally, research indicates that reliability assessments can be influenced when an observer has knowledge of the idiosyncratic scoring patterns used by the second observer. For example, Romanczyk, et al. (1973) have demonstrated that observers markedly changed their scoring behavior when reliability was measured with two different assessors who had previously communicated their idiosyncratic scoring criteria to the observers. In this investigation, reliability was assessed across all possible combinations of observers, so that the opportunity to become familiar with the idiosyncratic patterns of each observer was limited as far as possible.

Individual Assessment of Research Subjects

Each research subject was individually assessed twice during the time period under study: the first assessment was conducted prior to the implementation of the first treatment, and the second measurement was conducted immediately following the end of the data collection period. The majority of research subjects were assessed through the use of the McCarthy Scales of Children's Abilities (McCarthy, 1972). For those subjects whose motoric disabilties prevented an adequate assessment of their abilities through the use of the McCarthy Scales, the Developmental Profile (Alpern & Boll, 1972) was employed.

It should be stressed that the obtained scores were not intended for use as a dependent variable for the evaluation of treatment efficacy, but rather were used as a means to determine the developmental status of each subject prior to the implementation of the treatment and to monitor changes in developmental status occuring during the time period under study. It was hypothesized that the general level of functioning exhibited by the individual subjects may have had a mediating effect on the treatment variables. Although no definitive conclusions concerning such an effect could be made, it was believed that this information may be useful in the interpretation of the obtained results.

Subjects in this investigation were assessed by one of two graduate students, each with previous experience in the individual assessment of young handicapped children. A description of the assessment instruments follows.

The McCarthy Scales of Children's Abilities is a normative test designed for use with 2 1/2 to 8 1/2 year old children. It provides a measure of the child's general intellectual level as well as the child's strengths and weaknesses in five important developmental areas. Norms for the McCarthy were developed by assessing approximately 100 children at each age level; as well, validity was established comparing children's scores on the McCarthy with other already established instruments such as the Stanford Binet and the W.P.P.S.I.

The five scales of the McCarthy are: Verbal, Perceptual-performance, Quantitative, Memory, and Motor. Each scale contains a number of subtests, ranging from 4 to 7 subtests in any one area, with a total of 18 subtests in all. Some subtests are used in more than one scale, for example, the pictorial memory test is used in both the Verbal and Memory Scales.

When administering the McCarthy, the child is asked to complete the tasks included in the subtests of the five scales. Points are awarded on the basis of the child's performance on each of the tasks. Additional points are awarded for completion of increasingly complex tasks as determined by the manual. Points are then totalled and converted to a score which is representative of the child's functioning level at that time in each of the five developmental areas. The scores from the Verbal, Perceptual-performance and Quantitative Scales are combined to give the General Cognitive Index, an indication of the child's general intellectual functioning. This score reflects the child's ability, in comparison to other children of the same chronological age, to integrate his present knowledge and generalize it to the tasks in the Scales.

The Developmental Profile (Alpern & Boll, 1972) employs interviews with parents or others thoroughly familiar with the target child in order to estimate his/her developmental level in five functional areas: physical skill, self-help, social competence, academic skills and communicative ability. Each subscale has two or three items at each age level, which are calculated at six month intervals through the first four years and yearly thereafter to the ceiling of ten to twelve years (depending on subscale). Scores obtained are displayed as developmental ages in each functional area, and a ratio IQ equivalency score is determined from the age equivalent of the academic scale.

Teacher Training and Follow-up Visits

After four weeks of baseline observations, teachers participated in the first three hour inservice training session, the content and structure of which has been discussed in the literature review chapter. At the conclusion of the training, the staff were requested to designate a single subject with whom they would immediately implement their newly acquired strategies. The implementation of the treatment was staggered across children in order to meet the requirements of the multiple-baseline across subjects design employed in this study.

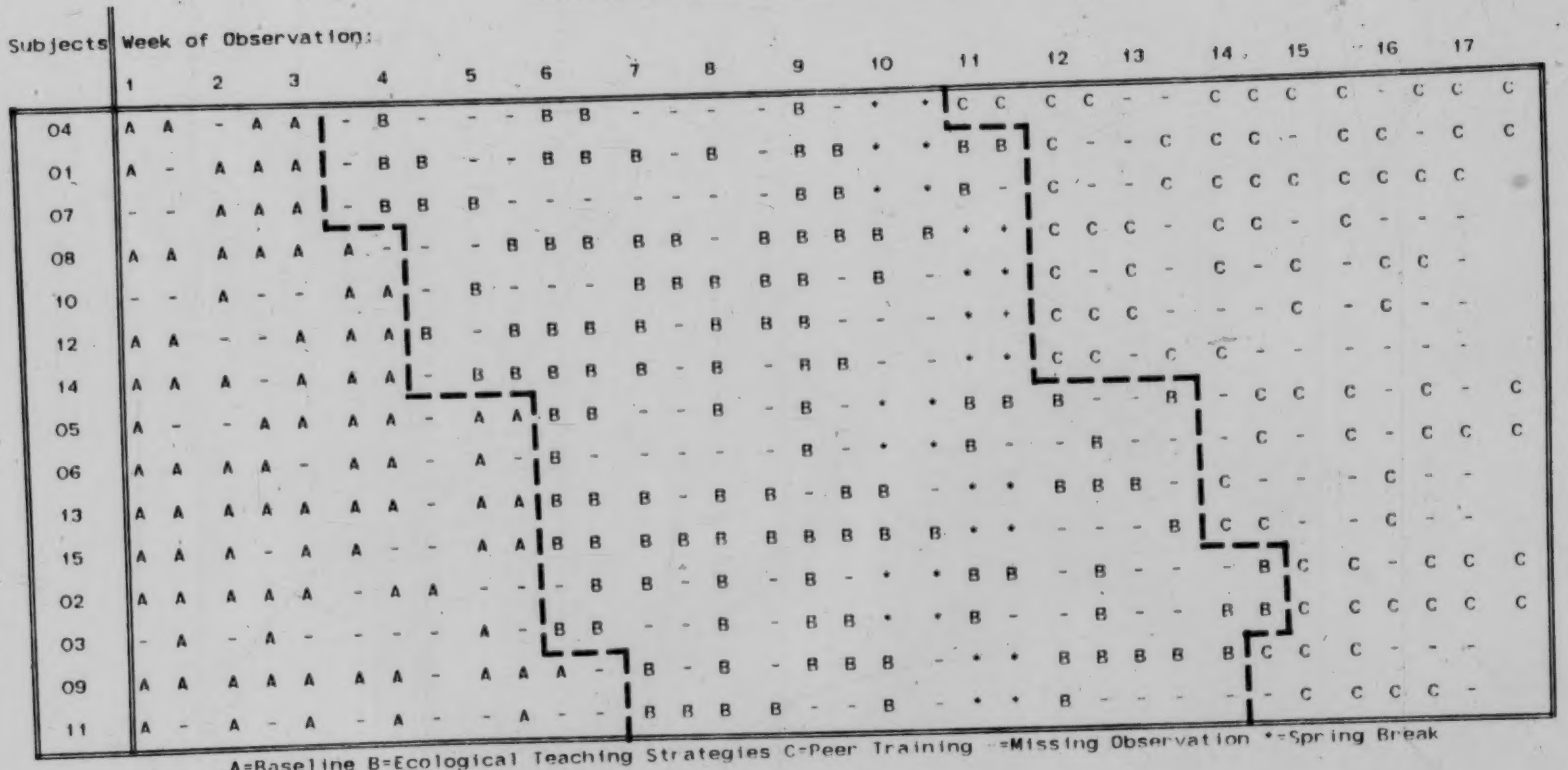
During the first week following the training session, the inservice presenter made a follow-up visit to the classroom in order to monitor the implementation of the inservice strategies, as well as to address any questions or concerns which may had arisen out of the staff's attempts to use the strategies. Staff were observed while using the ecological teaching strategies, and verbal feedback coupled with social reinforcement was provided (i.e. Coissairt et al., 1973). Further, if staff were having particular difficulty with a specific technique, the appropriate use of the strategy was modeled (i.e. Watson & Uzell, 1980).

After two to three week period, the treatment was implemented for the remaining subject(s) in the classroom. A second classroom visit took place at this time, again to monitor treatment implementation and "trouble-shoot" problems the staff experienced in using the strategies with a different subject. Further, staff were encouraged to contact the inservice personnel if new problems surfaced, and additional class visits or telephone consultations were conducted as necessary.

The second inservice training session took place approximately six weeks following the first. The content and structure of this module was also described in the literature review. As with the first module, the implementation of the inservice strategies was staggered across subjects. The two classroom visits were scheduled to coincide with the introducation of the treatment. See figure 2 for a graphic representation of procedures used in this investigation.

Figure 2

Multiple Baseline Across Subjects


Subjects
Week of Observation:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
04 A A - A A - B - - - B B - - - - B - * * C C C C - - C C C - C C
01 A - A A A - B B - - B B B - B - B B * * B B C - - C C C - C C - C C
07 - - A A A - B B B - - - - - - - B B * * B - C - - C C C C C C C C
08 A A A A A A - - - B B B B B - B B B B B * * C C C - C C - C - - -
10 - - A - - A A - B - - - B B B B B - B - * * C - C - C - C - C C -
12 A A - - A A A B - B B B B - B B B - - - * * C C C - - - C - C - -
14 A A A - A A A - B B B B B - B - B B - - * * C C - C C - - - - - -
05 A - - A A A A - A A B B - - B - B - * * B B B - - B - - C - C - C C C
06 A A A A - A A - A - B - - - - - B - * * B - - B - - - C - C - C C C
13 A A A A A A A - A A B B B - B B - B B - * * B B B - C - - - C - -
15 A A A - A A - - A A B B B B B B B B B B * * - - - B C C - - C - -
02 A A A A A - A A - - - B B - B - B - * * B B - B C C - C C C C C C
03 - A - A - - - - A - B B - - B - B B * * B - - B - - B B C C C C C C
09 A A A A A A A - A A A - B - B - B B B - * * B B B B B C C C - - -
11 A - A - A - A - - A - - B B B B - - B - * * B - - - - - C C C C -
A=Baseline B=Ecological Teaching Strategies C=Peer Training -=Missing Observation *=Spring Break

F. Internal and External Validity

Internal Validity

"Internal validity refers to the degree of certainty that manipulation of the independent variable is responsible for the observed changes in the dependent variable" (Kratochwill, 1978, p. 11). It has been widely recognised that the lack of control of many extraneous variables inherent in naturalistic research makes it difficult to maximize the internal validity of such research (Glass et al., 1975; Kratochwill, 1978). A discussion of the possible threats to the internal validity of this research design, and the steps taken to control these influences follows.

1) History: Historical confounding is a major threat in time-series research, as the data collection extends over a long period of time. Therefore, the probability that extraneous events may cause changes in the data series that are confounded with the true intervention effects increases (Kratochwill, 1978). However, the use of the multiple baseline across subjects (Baer et al., 1968) helps eliminate the plausibility of historical invalidating influences as experimental control is repeatedly demonstrated through the sequential introduction of the intervention across subjects (Kratochwill, 1978).

2) Maturation: It is possible that maturation, or physical and/or psychological changes within the subjects over time, may have affected their performance on the dependent variables (Kratochwill, 1978). However, it has been noted that the potentially confounding influence of this variable can be minimized by the careful analysis of trends in the baseline data (Parsonson & Baer, 1978). The extended baseline period for some subjects that characterizes the multiple baseline design should facilitate this analysis. Further, in regard to the analysis of the effects of the second intervention, (social skills training) it has been repeatedly demonstrated that, in the absence of intervention, the patterns of social interaction observed in integrated classrooms are relatively stable (Devoney et al., 1974; Peck et al., 1978; Strain et al., 1977).

3) Testing: Confounding due to testing effects can occur when the measurement process itself is a stimulus for change (Kratochwill, 1978). However, as previously discussed, steps were taken to minimize the reactive effects of the observational methodology.

4) Instrumentation: The use of unreliable measuring devices can pose a serious threat to the internal validity of a study, and is of particular concern when data is collected by human observers (Johnson & Bolstad, 1973; Kratochwill, 1978). Again, as previously discussed, caution was exercised in the design and use of the observational methodology, in an attempt to circumvent confounding factors such as observer bias or drift.

5) Multiple Intervention Interference: Due to practical considerations, it was necessary to introduce the two different treatments in the same order to all subjects. Therefore, it is not possible to determine the pure effects of the second module, as the observed effect may be due to some combintation of that intervention and the previous inservice training (Kratochwill, 1978). However, it should be noted that since the content of the inservice modules were each directed at changing the behaviors of different groups within the classroom settings (staff and peers), the effects of the second module should be minimally influenced by the prior introduction of the first module.

6) Instability: The degree of variability demonstrated in data series as the result of repeated observation of behavior can pose a significant threat to the internal validity of an experiment. If the variability of the data series is large, it is very difficult to determine whether the observed changes are actually due to the intervention, or are simply part of the naturally occurring variations (Kratochwill, 1978). The significance of this invalidating influence will be discussed in more detail in Chapter Five, as it relates to the data obtained in this study.

7) Reactive Interventions: The internal validity of time series experiments can be threatened if the investigator introduces the intervention as a reaction to a previous or impending change in the data series, which can confound treatment effects with extraneous events that shift the data series in the expected direction (Glass et al., 1975). However, in this study, the baseline and intervention phases of the study were arranged according to a predetermined schedule. Therefore, the deliberate application of the intervention at a time when the data was at extreme values did not occur.

External Validity

External validity refers to the extent to which the findings obtained in a specific investigation can be generalized to other subjects, settings and therapeutic agents

(Kratochwill, 1978). It has been repeatedly noted in the research literature that a major difficulty inherent in single subject designs is the inability to generalize results to subjects not involved in the particular experiment (Hersen & Barlow, 1976; Kazdin, 1973; Kratochwill, 1978). In order to improve the generality of the results obtained in this investigation, the direct replication of the experiments across different subjects was conducted (Hersen & Barlow, 1976). Although ideally the subjects involved would have closely resembled each other, the heterogeneity of the available subjects effectively precluded the possibility of matching subject variables. However, since this heterogeneity is typical in the target population, the evaluation of treatment effects across the fifteen different subjects should increase the confidence with which the effects of the treatments can be generalized to the population of interest.

Further, this investigation sought to improve the generality of the obtained results through the systematic replication of the experiment across settings (Hersen & Barlow, 1976). As a result, the data obtained across settings should suggest the degree to which these results can be generalized to other settings of interest. However, it should be noted that the inservice personnel presenting the training package and providing follow-up consultation were constant across all subjects. Therefore, the effects of this treatment that would be as demonstrated when it is administered by other agents cannot be determined (Hersen & Barlow, 1976).

It should be noted that treatment effects were replicated across both subjects and settings which differed significantly from one another on a number of important variables. This heterogeneity can create significant difficulties when the attempt is made to accurately interpret treatment effects. That is, if consistent results are obtained, the generality of the findings can be established with a significant degree of confidence. On the other hand, if differential effects are seen, it is impossible to determine which variable or combination of variables are responsible for the observed differences. However, a careful analysis of potentially relevant variables can allow the formulation of many plausible hypothesis which can be pursued in future investigations (Hersen & Barlow, 1976). Therefore, this study will first investigate the possible generality of the treatment effects across a variety of subjects and settings which are typical of those represented in the population of interest, and provide possible avenues to explore in order to effectively

modify the training procedures to the unique needs of specific subjects and settings.

In addition to the above mentioned factors, Kratochwill (1978) discusses a number of potential threats to the external validity of an investigation. A discussion of these issues follows.

1) Explicit Description of the Independent Variables: The independent variables under investigation has been described as completely as possible, and the specific materials used were presented. This material should provide the information necessary to estimate the extent to which these results can be generalized to other settings.

2) Multiple Intervention Interference: As previously noted, the order in which the two treatments were introduced poses a threat to the internal validity of this investigation. Further, the multiple intervention also makes it difficult to determine the generality of these findings to settings in which only one treatment is employed (Kazdin, 1973). However, as previously noted, each module used attempted to change the behavior of different groups within the classroom setting. Therefore, it is believed that the effects demonstrated would be relatively independent of the order of introduction, thus minimizing the invalidating influence of this factor.

3) Hawthorne Effect: It is widely accepted that a subject's knowledge that they are participating in a research study may influence the manner in which they behave in response to the treatment. Therefore, the obtained results may not be generalizable to other subjects who do not have such knowledge.

Further, the reactivity of the observation process may limit the generalizability of the investigation. While it has been demonstrated that preschool age children generally do not alter their behavior in response to the presence of an observer (Johnson & Bolstad, 1973) it is possible that staff may perform differently in situations in which observers are absent. The presence of the observer may function as a discriminative stimulas for the performance of the target behaviors, thus limiting the degree to which the research finding can be generalized to other situations and settings (Haynes & Horne, 1982; Kazdin, 1973). However, as previously discussed, observers were instructed to conduct themselves in a manner which reduces the reactivity of the measurement process.

4) Novelty and Disruption Effects: It has been suggested that experimental effects demonstrated in response to an unusual intervention may be a function of a novelty

phenomena, with effects diminishing as the intervention progress. Additionally, an intervention may disrupt the normal environmental routines to the extent that the intervention may be less effective in its initial stages. However, given that the measurement of the treatment effects extended over time, these factors should have a minimal effect on the validity of this design.

5) Experimenter Effects: As previously discussed, given that the same investigator conducted both the training and follow-up consultations, it is possible that the effects of these treatments may not generalize across different experimenters. Invalidity due to experimenter effects can also be the result of observer bias, as the data reported may not accurately reflect the treatment effects. However, as previously discussed, precautions were taken to minimize the threat of observer bias to the validity of this study.

6) Interaction of History and Intervention Effects: The use of the multiple-baseline across subjects design allows the researcher to rule out historical variables as confounding influence. If the treatment effects are replicated across subjects over time, it is highly unlikely that, in each case, the occurance of a particular historical event could be responsible for the treatment effect.

7) Measurement of the Dependent Variable: The observational code used in this study allowed for the reliable measurement of the dependent measures, as demonstrated through the calculation of inter-observer reliability. Therefore, this factor would not appear to pose a significant threat to the generalizability of the results.

8) Interaction of Time of Measurement and Intervention Effects: The repeated measures which are characteristic of time-series designs generally increases the external validity of a study by demonstrating the presence or absence of a treatment effect over numerous measurement occasions. However, given that the observation periods occurred in a specific situation for each child, it is not possible to determine the degree to which these results can be generalized to other classroom situations.

Chapter Five will present the results of the data collection process, and Chapter Six discusses the implications of these results in the evaluation of the two insevice modules.

V. Results

The results of this investigation are graphically presented in order of the research questions posed to evaluate the effects of the two inservice modules as described in Chapter Three. The treatment effects which were seen across subjects are briefly described, and common behavior patterns identified. A more detailed discussion of the differential responses to the treatment which was seen across subjects, and their implications for the evaluation of these inservice modules is presented in Chapter Six.

It should be noted that in order to facilitate the visual analysis of the data, the obtained results for each subject has been presented in groupings according to the program attended. It should be further noted that Urban Program 03 includes only one subject, as the second student who was initially recruited for this investigation was transferred from the program during the third week of the baseline phase. As a result, only the observational data which was obtained for the remaining subject is presented.

A. Inservice Module #1: Ecological Teaching Strategies

Research Question #1:

> As a result of training, was there a significant increase in the rate of turntaking exchanges between the instructional staff and the handicapped child?

In general, visual analysis of the graphic data presented in Figures 3 through 9 reveals that there was a marked increase in the rate of turntaking exchanges occurring between the staff and their handicapped students associated with the introduction of the treatment, an effect which was replicated across the majority of subjects under study. Additionally, although in many cases the data paths are characterized by some variability, there is a slight upward trend within the treatment phase. It was noted that typically, the rate of occurrence of turntaking exchanges was lower following the implementation of the second treatment, although the behavior was maintained at a level higher than that demonstrated during the baseline phase. This change was not unexpected, as following the implementation of the peer-mediated strategies, the subjects were engaged in interactions with their peers more frequently, thus limiting the opportunity for turntaking

exchanges with staff. However, it should be noted that no treatment effect was demonstrated for subjects 13 and 14, as no turntaking exchanges were observed during any phase of the study. As well, while subjects 10 and 12 demonstrated an abrupt change in level between the baseline and treatment phases, the effect was temporary and the baseline level of behavior was rapidly re-established.

Figure 3

Rate of Turntaking Exchanges:

Staff and Handicapped Child

Urban Program 01

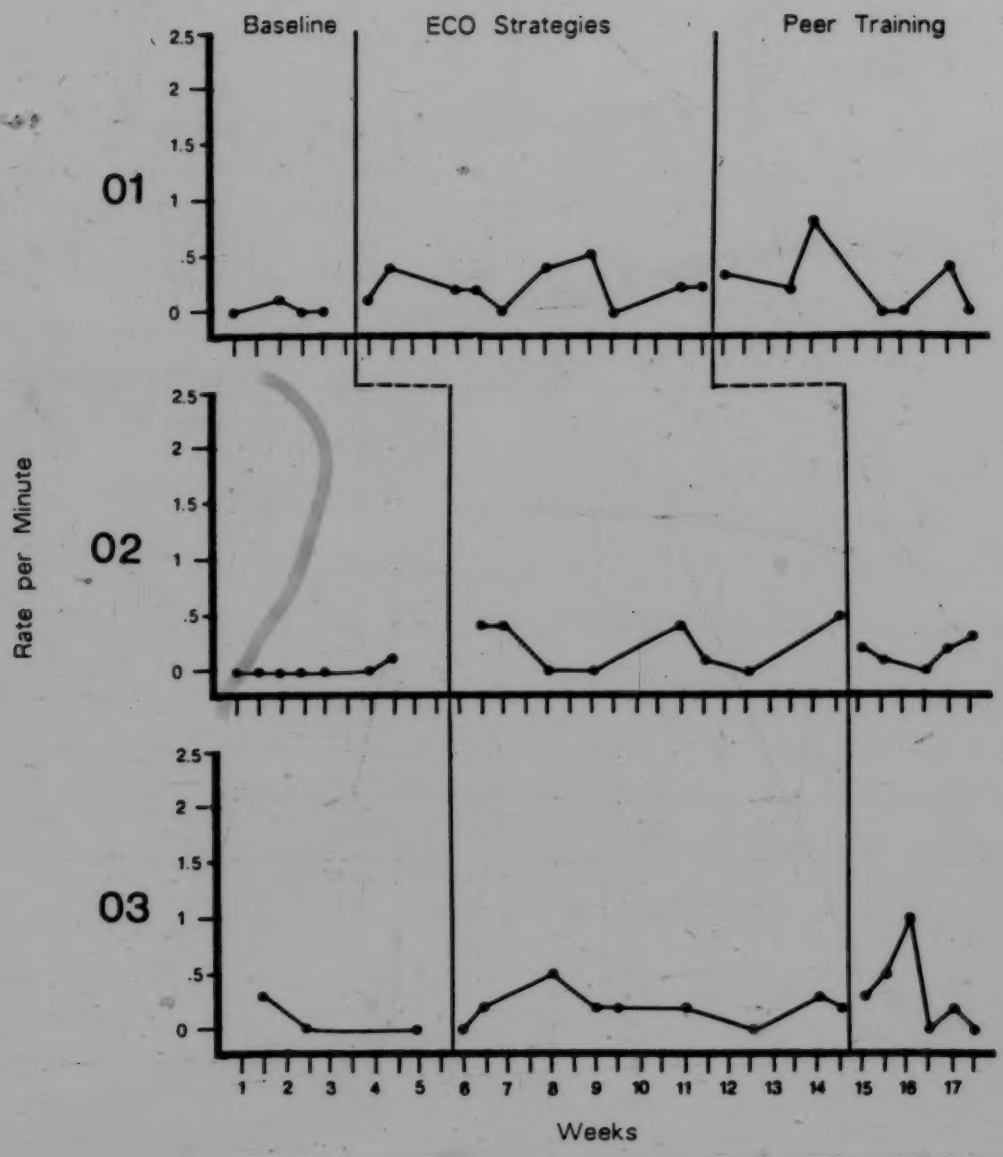


Figure 4

Rate of Turntaking Exchanges:

Staff and Handicapped Child

Urban Program 02

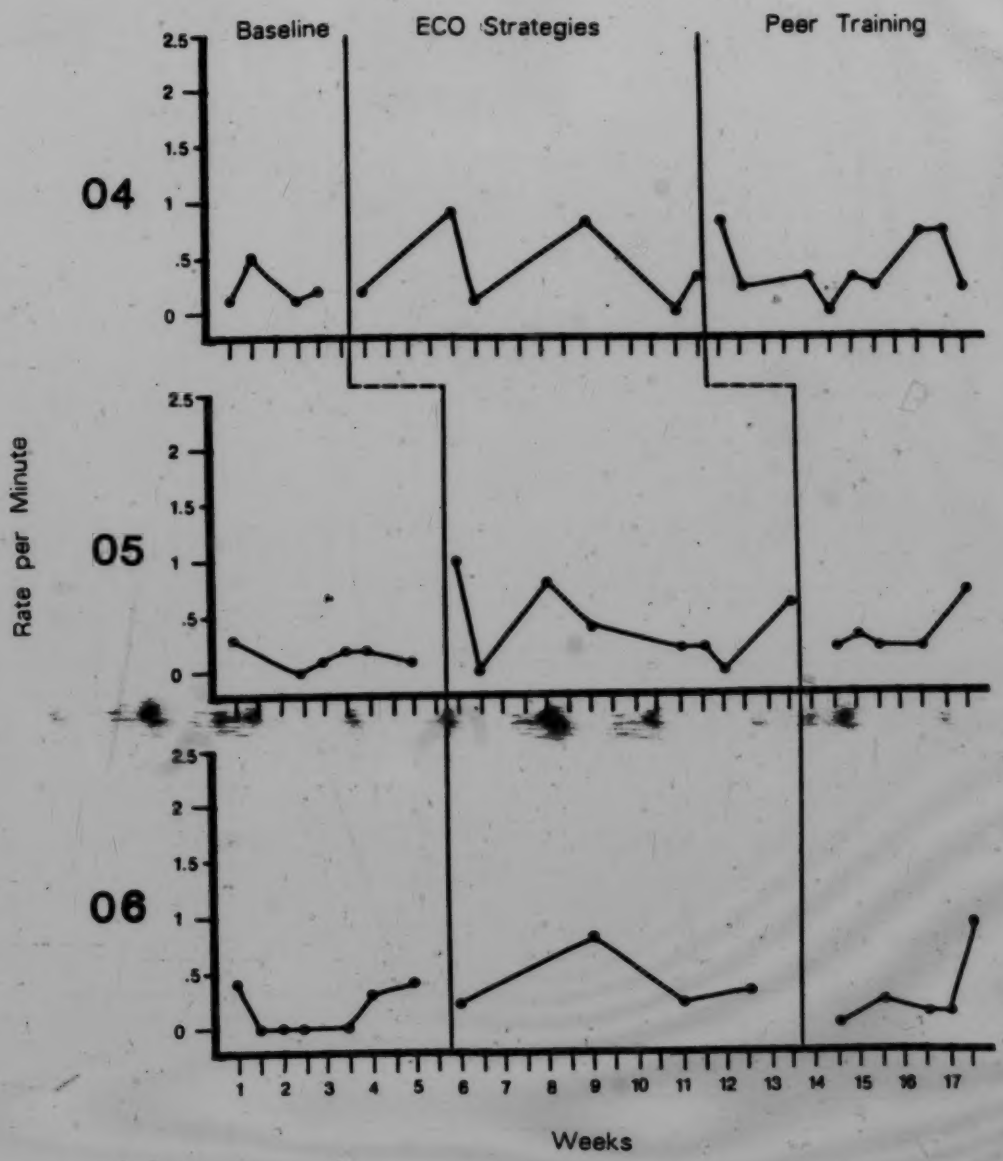


Figure 5

Rate of Turntaking Exchanges:

Staff and Handicapped Child

Urban Program 03

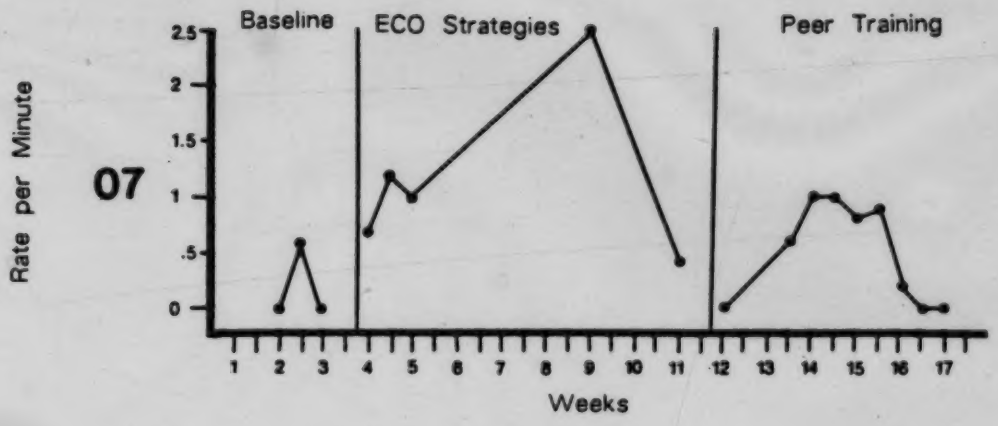


Figure 6

Rate of Turntaking Exchanges:

Staff and Handicapped Child

Rural Program 04

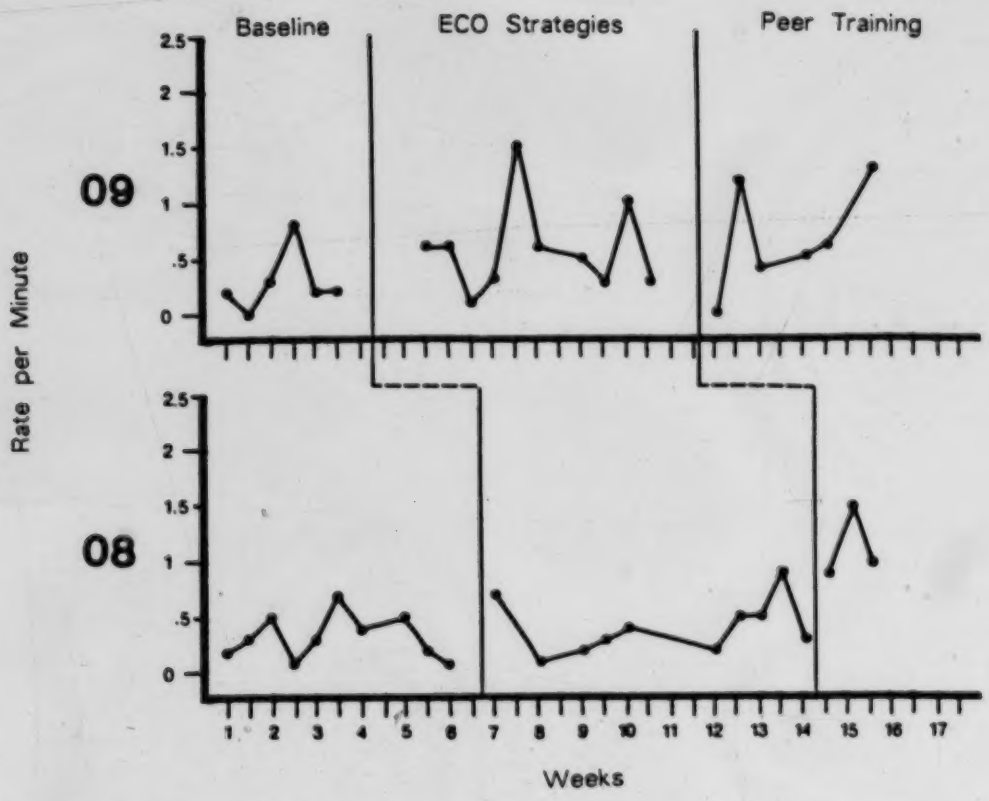


Figure 7

Rate of Turntaking Exchanges:

Staff and Handicapped Child

Rural Program 05

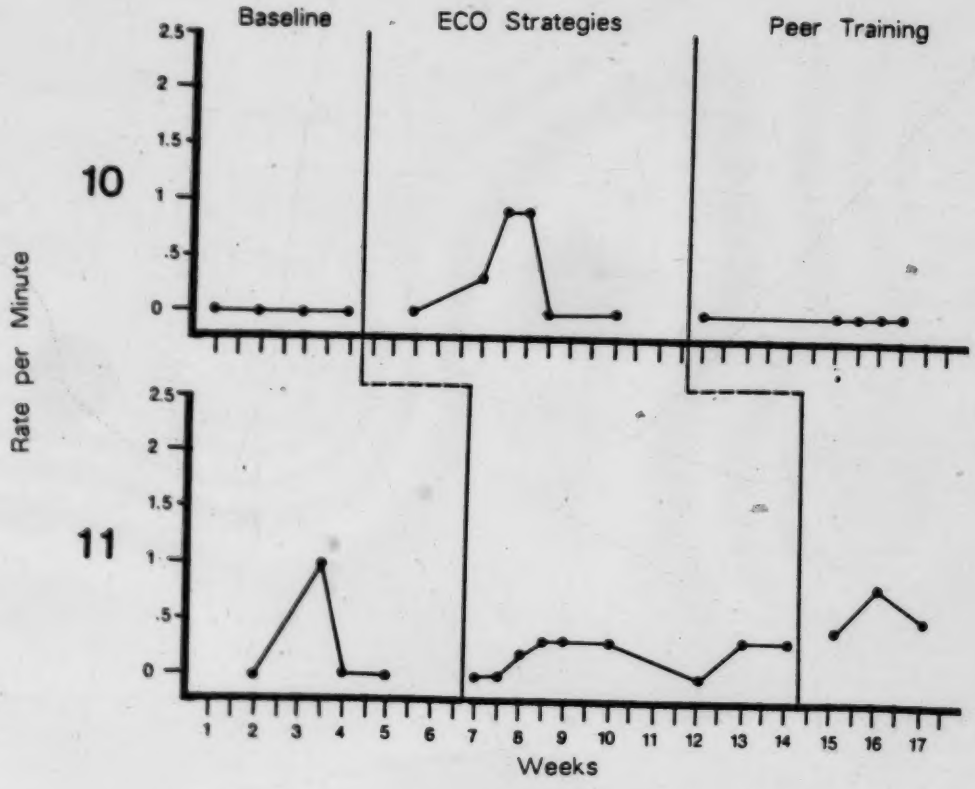


Figure 8

Rate of Turntaking Exchanges:

Staff and Handicapped Child

Rural Program 06

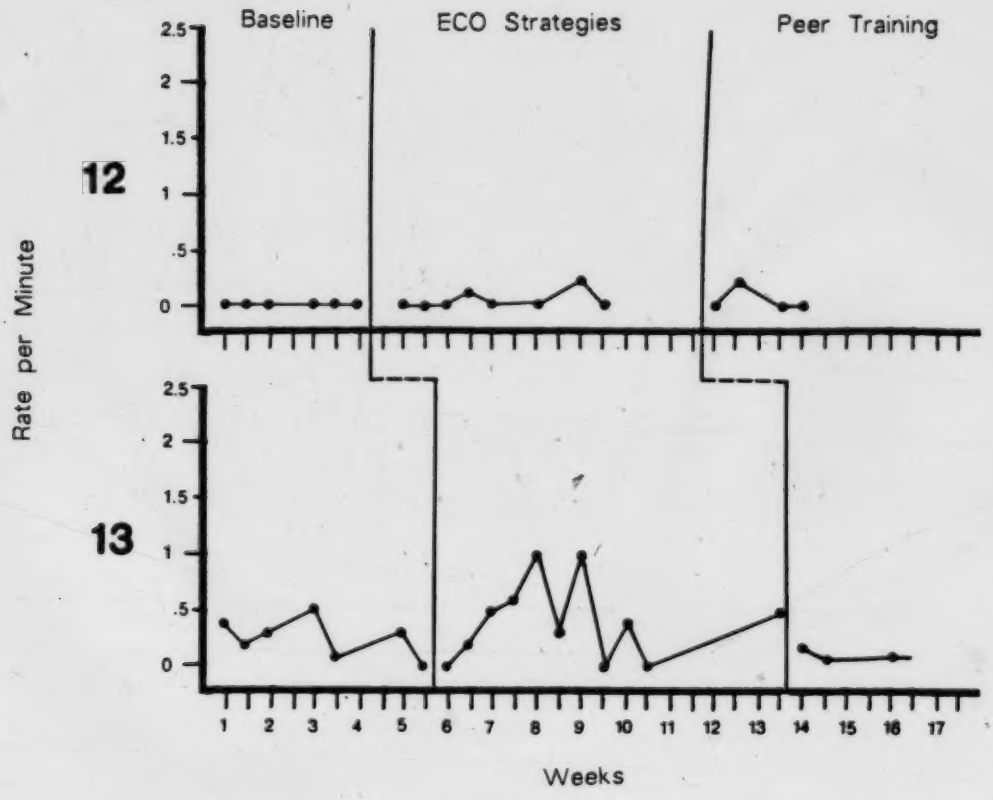
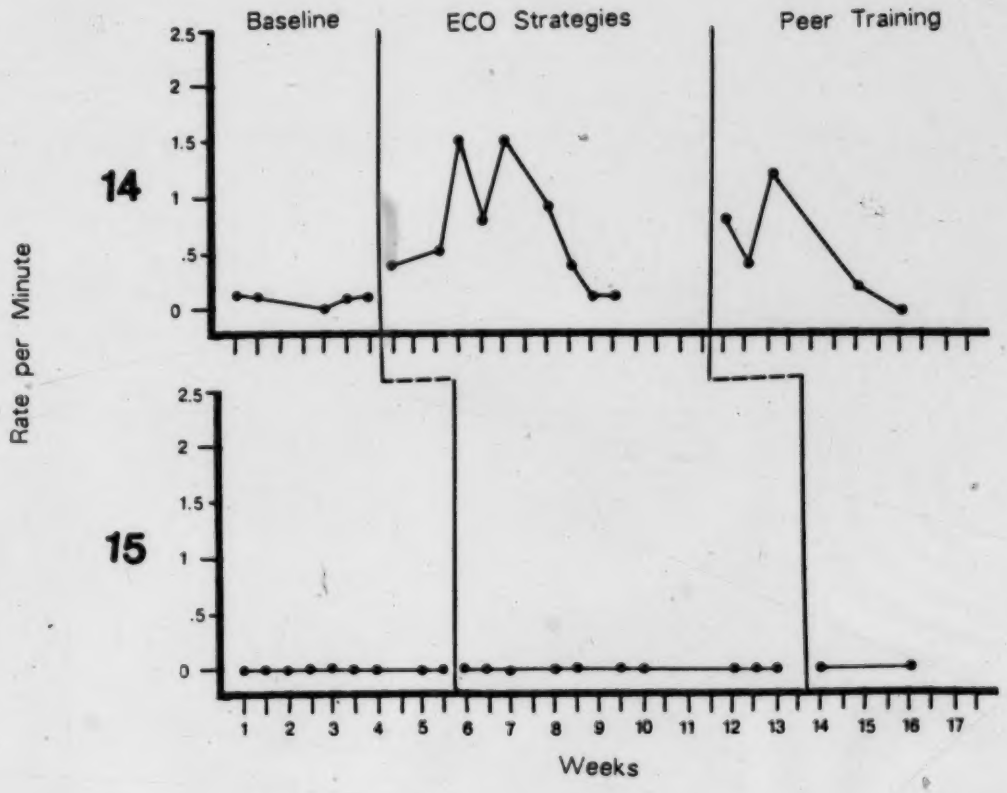


Figure 9

Rate of Turntaking Exchanges:

Staff and Handicapped Child

Rural Program 07



Research Question #2

As a result of training, was there a significant increase in the rate of the instructional staff's use of the ecological teaching strategies:

a. Imitation

b. Signal

c. Physical Prompt

The data presented in Figures 10 through 16 indicates that instructional staff in all settings demonstrated minimal or no use of the imitation during their interactions with their handicapped students across all phases of the study. There was more frequent use of the signaling and prompting strategies, although there was a lack of consistency in the use of these strategies across subjects. These results were not unexpected, as MacDonald (1982) has indicated that different strategies may be more or less effective as a means of maintaining a turntaking relationship, depending on the unique behavior patterns exhibited by the child. This conclusion is particularly evident in the differential patterns of use of the ECO strategies seen across subjects within single settings.

Figure 10

Rate of Staff Use of Ecological

Teaching Strategies

Urban Program 01

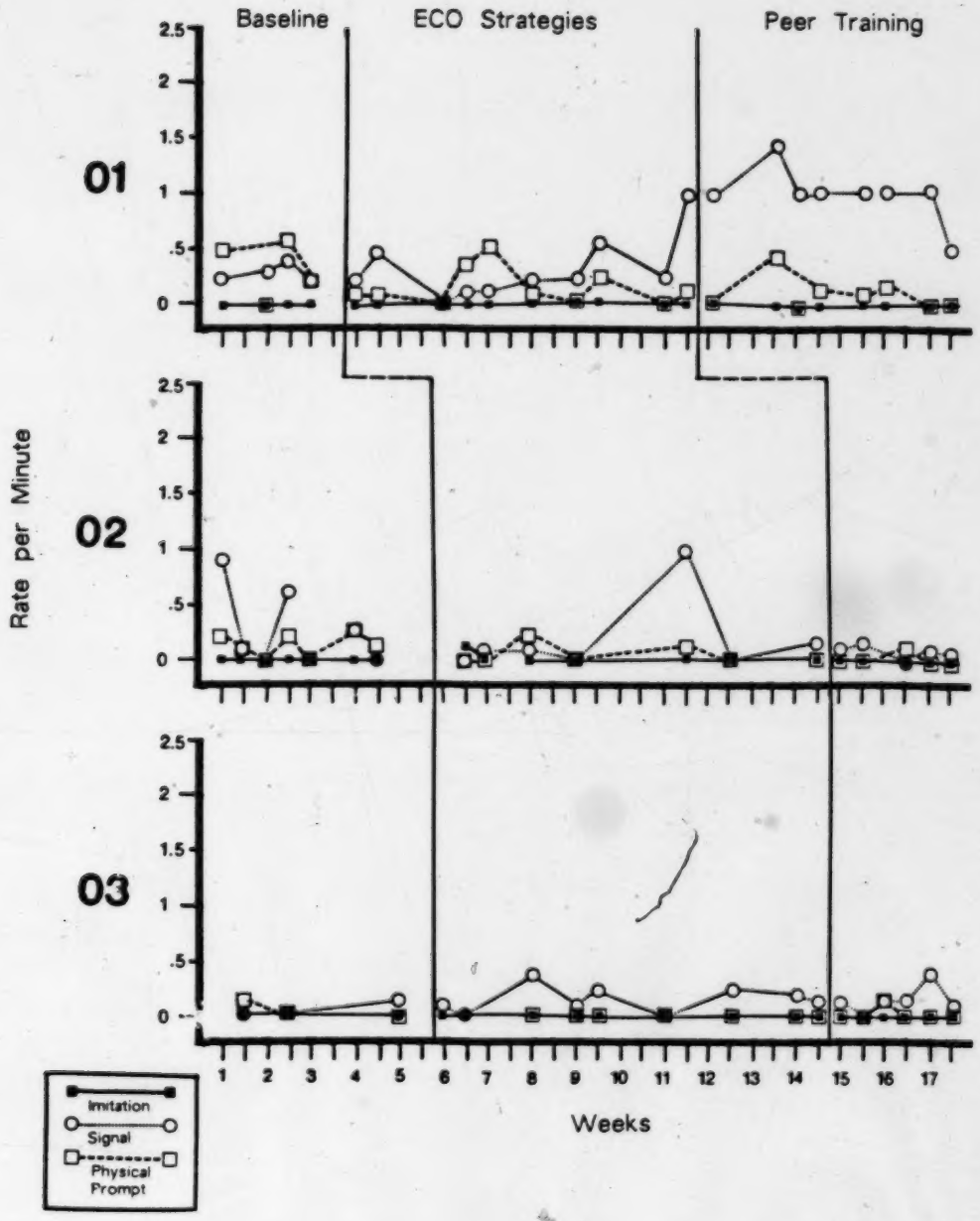


Figure 11

Rate of Staff Use of Ecological

Teaching Strategies

Urban Program 02

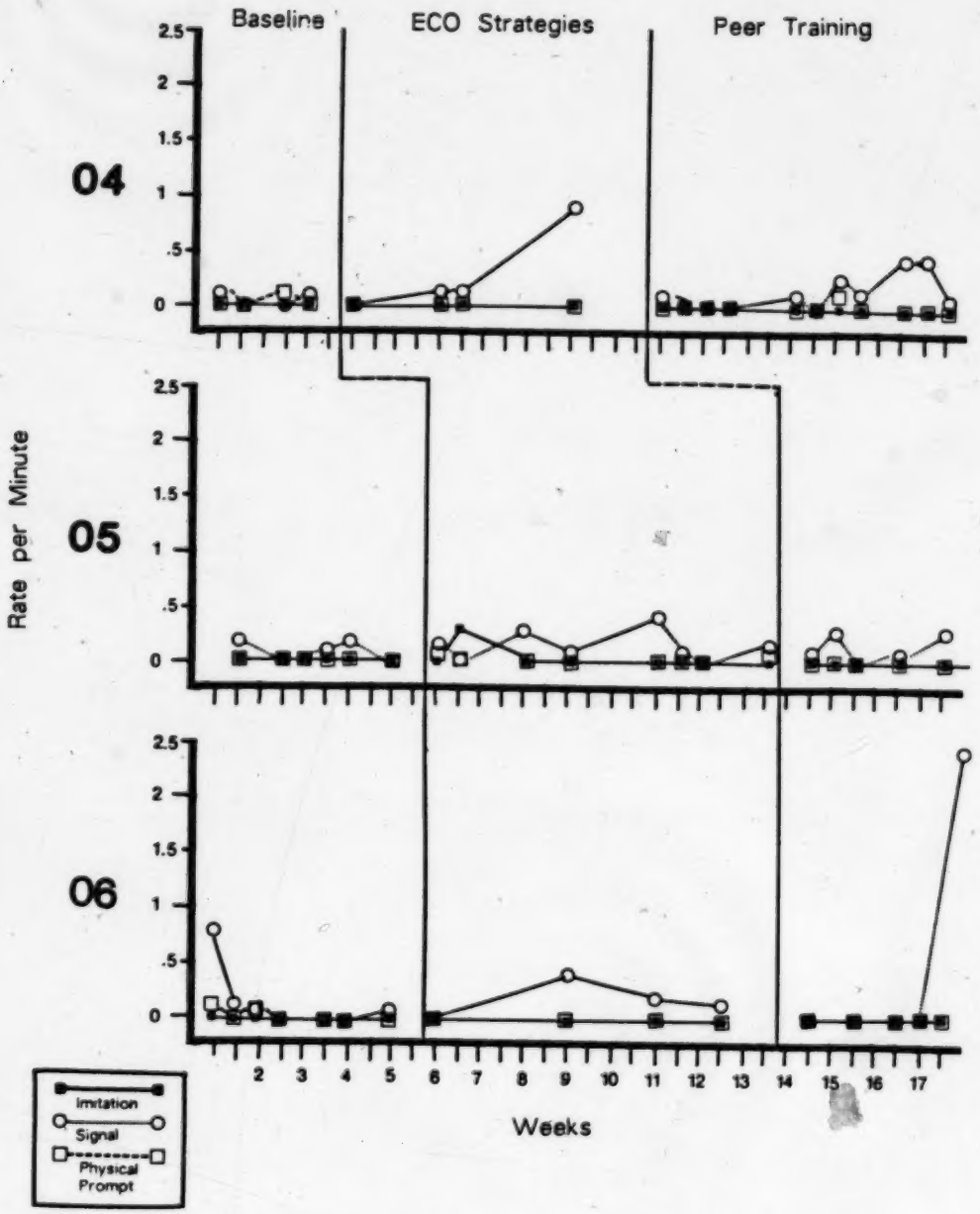


Figure 12

Rate of Staff Use of Ecological

Teaching Strategies

Urban Program 03

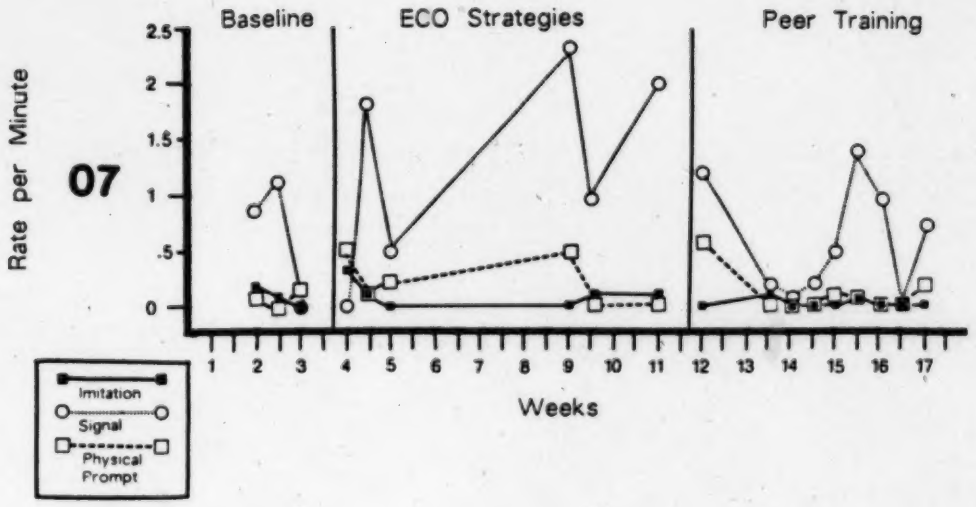


Figure 13

Rate of Staff Use of Ecological

Teaching Strategies

Rural Program 04

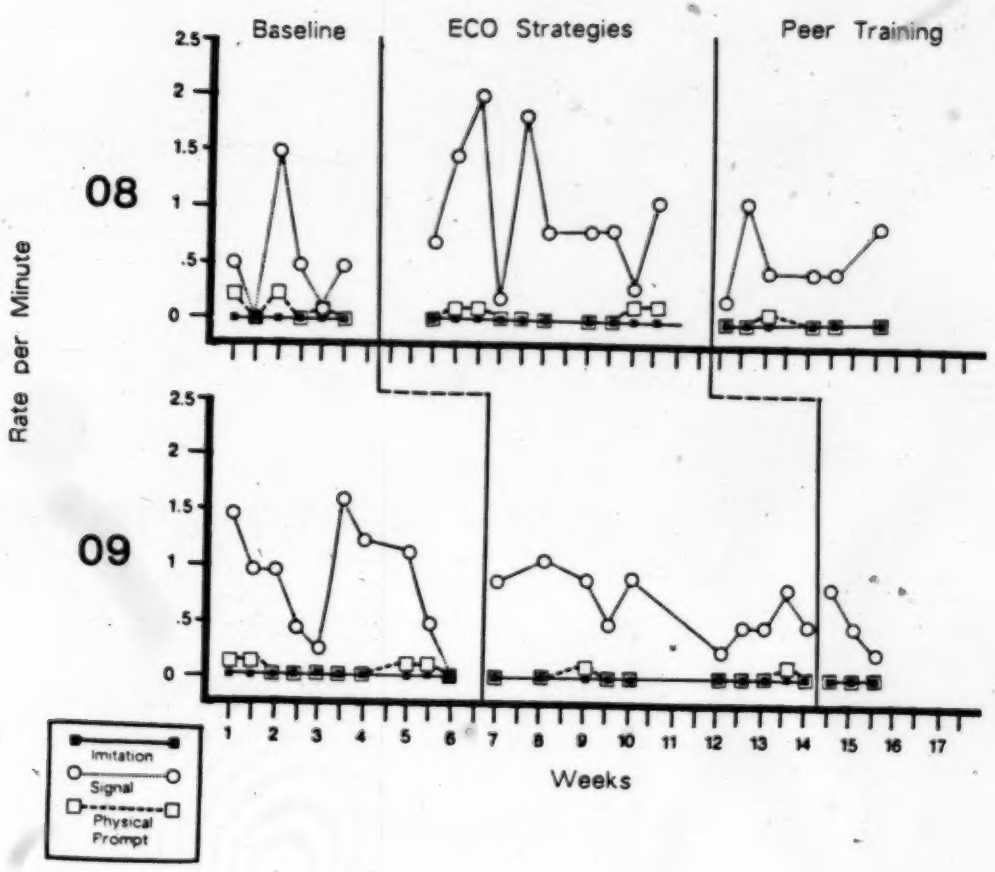


Figure 14

Rate of Staff Use of Ecological

Teaching Strategies

Rural Program 05

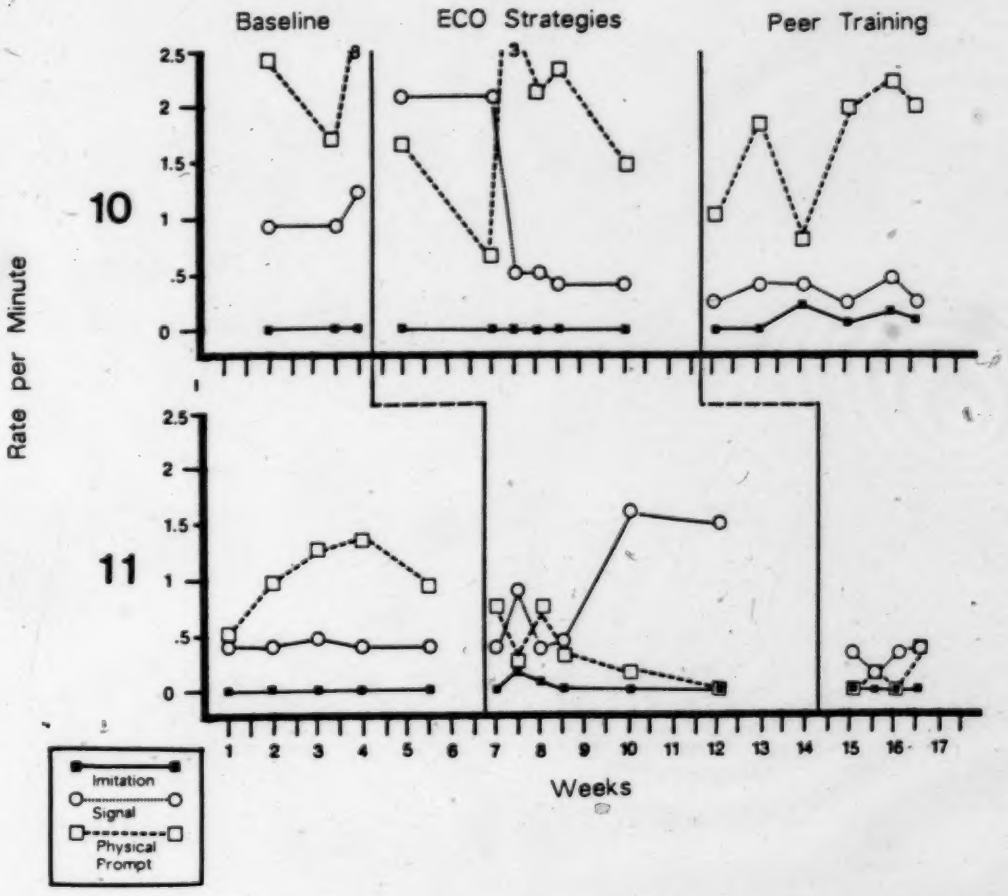


Figure 15

Rate of Staff Use of Ecological

Teaching Strategies

Rural Program 06

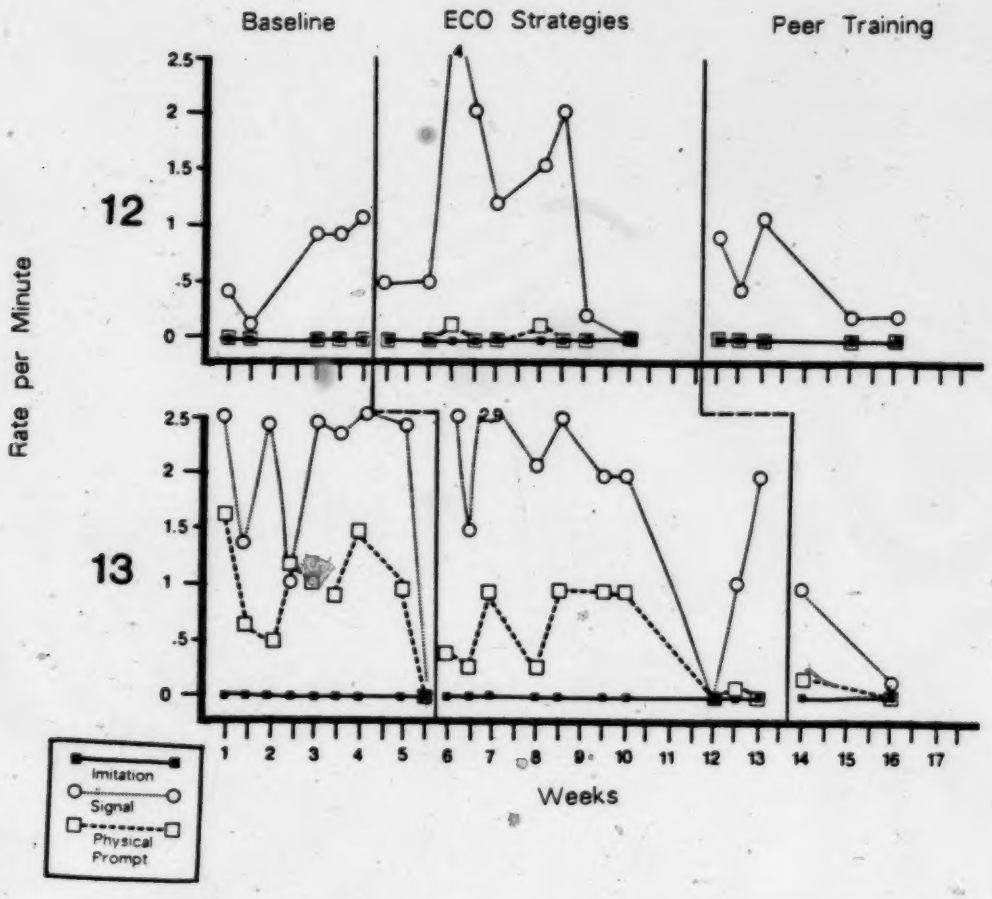
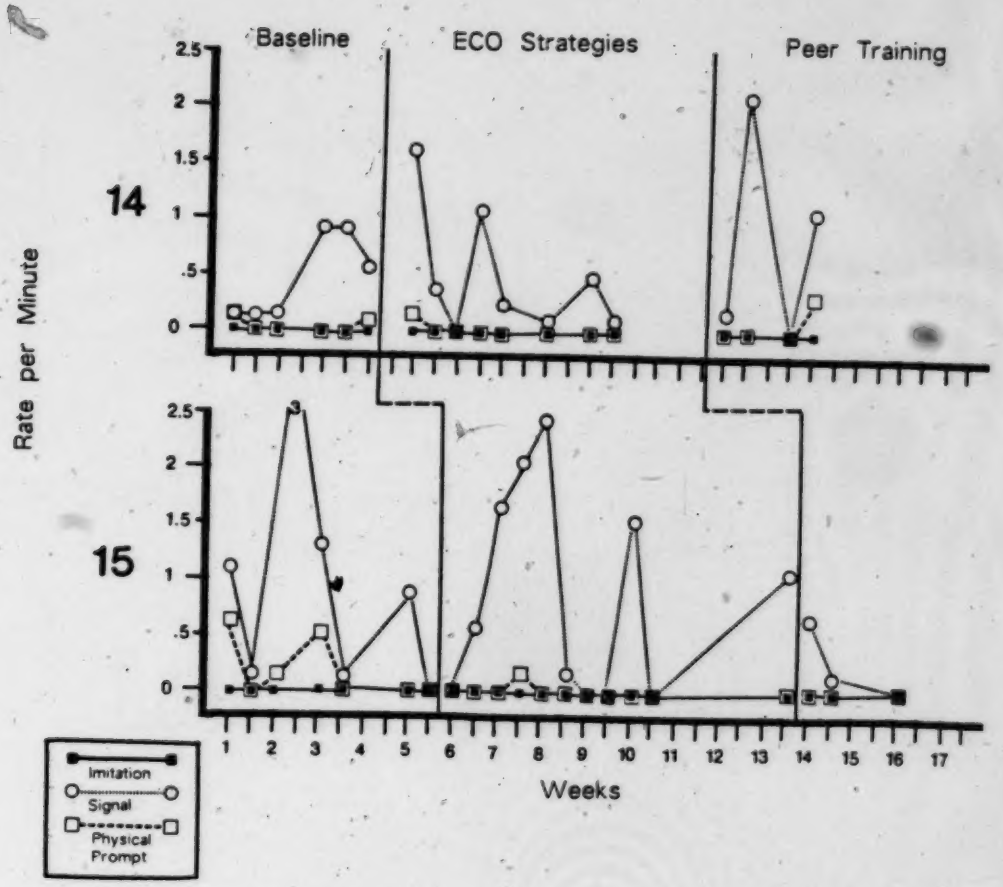


Figure 16

Rate of Staff Use of Ecological

Teaching Strategies

Rural Program 07



Research Question #3 and #4

As a result of training, was there a significant increase in the rate of turns taken by the staff when they interacted with the handicapped child?

As a result of training, was there a significant increase in the rate of turns taken by the handicapped child when interacting with the instructional staff?

In general, the majority of subjects demonstrated a significant increase in the number of turns taken during social interactions with staff during the treatment phase of this study (See Figures 17-23). The increase seen in staff turns closely matched that of the handicapped children, indicating that the turntaking exchanges were typically not dominated by either one of the participants. Again, a minimal number, or no turns were exhibited by subjects 13 and 14, who were previously shown as not to have engaged in turntaking exchanges.

Figure 17

Rate of Turns: Staff and Handicapped Child

Urban Program 01

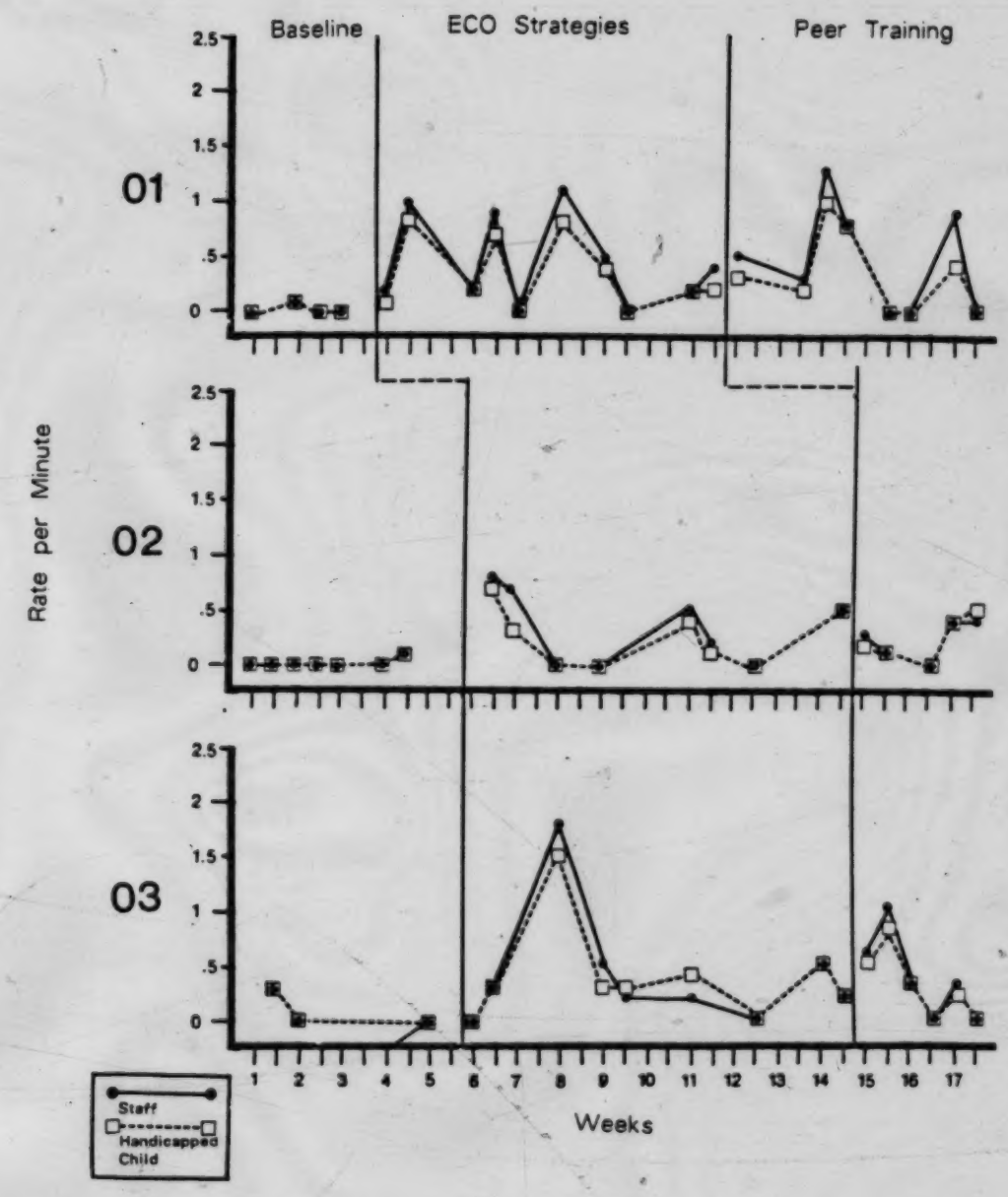


Figure 18

Rate of Turns: Staff and Handicapped Child

Urban Program 02

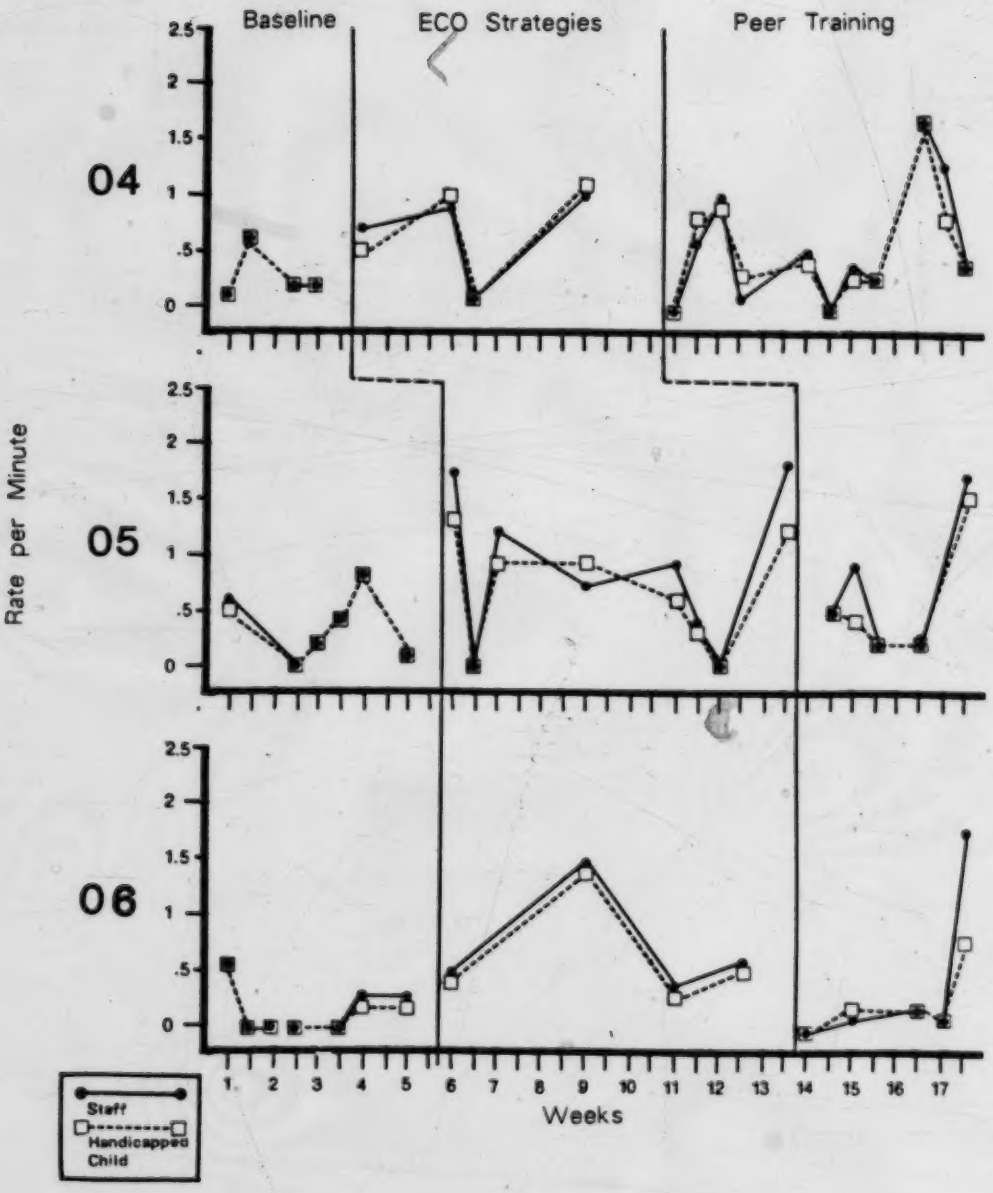


Figure 19

Rate of Turns: Staff and Handicapped Child

Urban Program 03

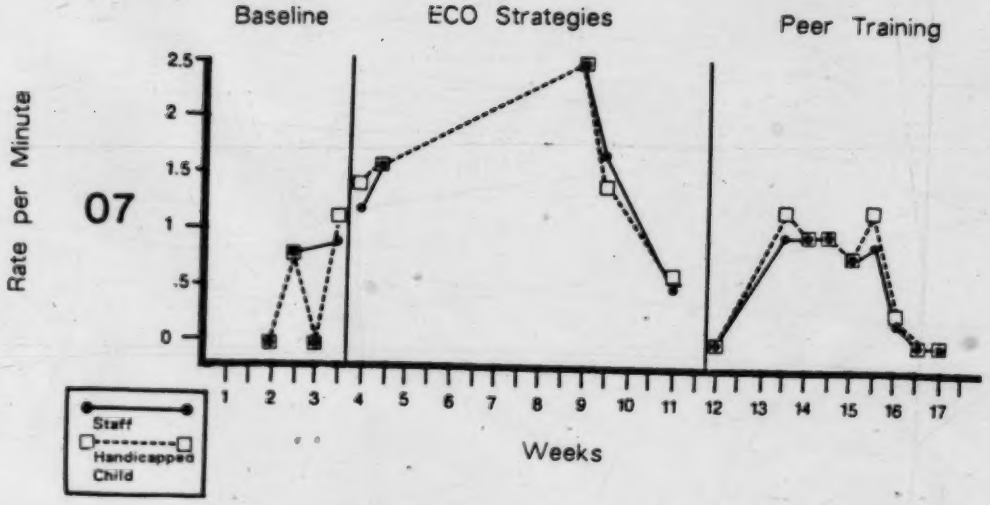


Figure 20

Rate of Turns: Staff and Handicapped Child

Rural Program 04

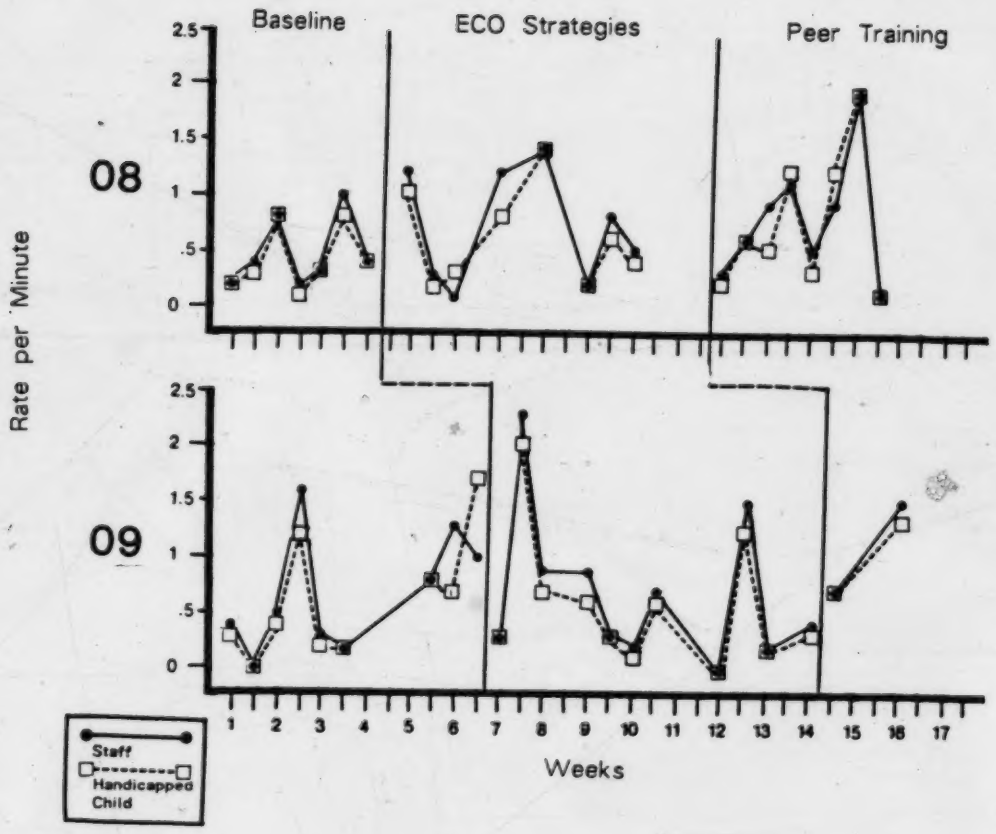


Figure 21

Rate of Turns: Staff and Handicapped Child

Rural Program 05

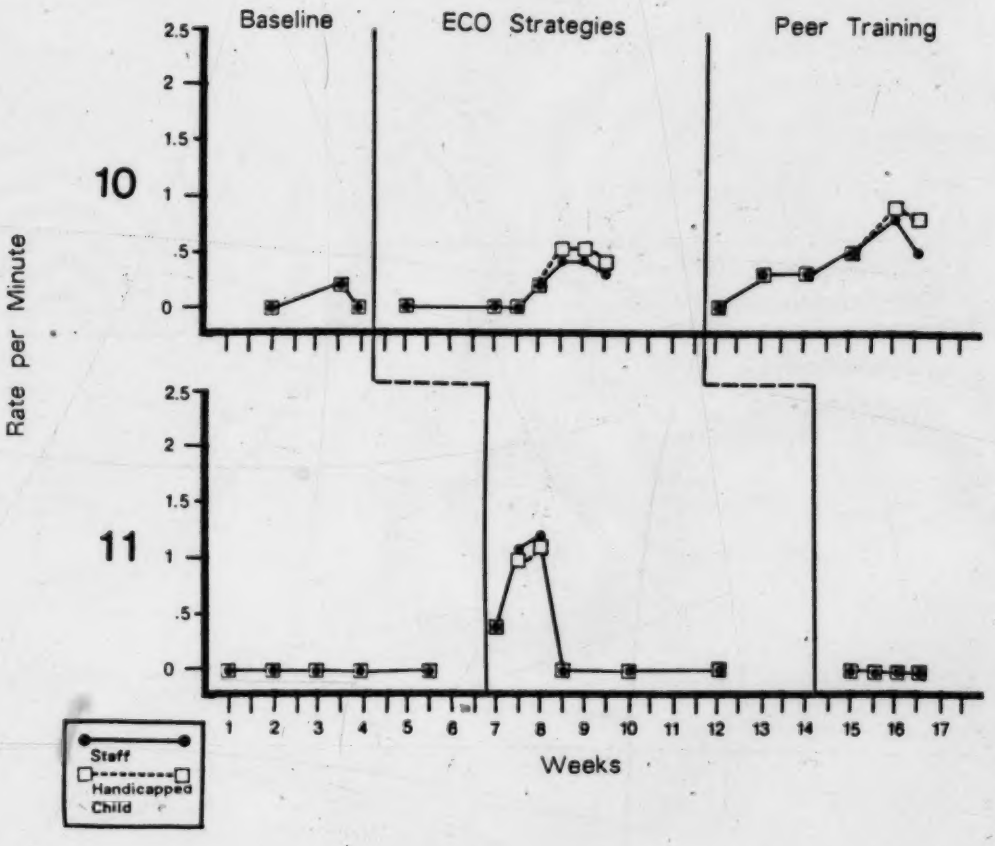


Figure 22

Rate of Turns: Staff and Handicapped Child

Rural Program 06

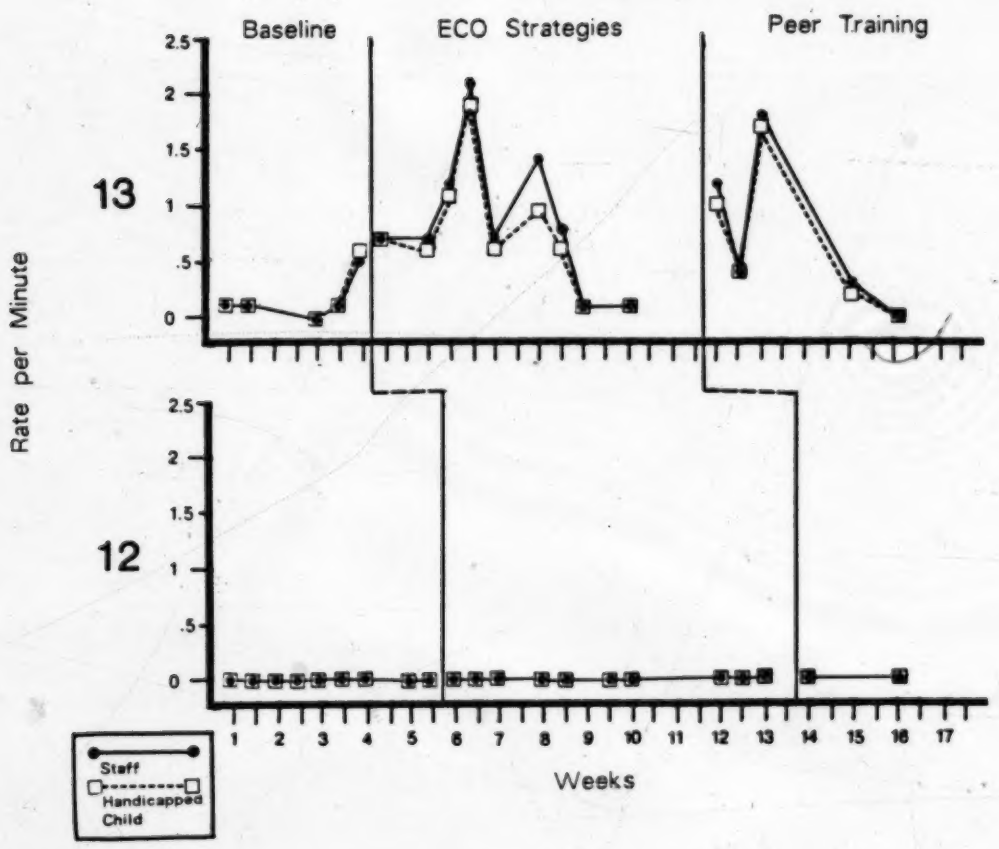
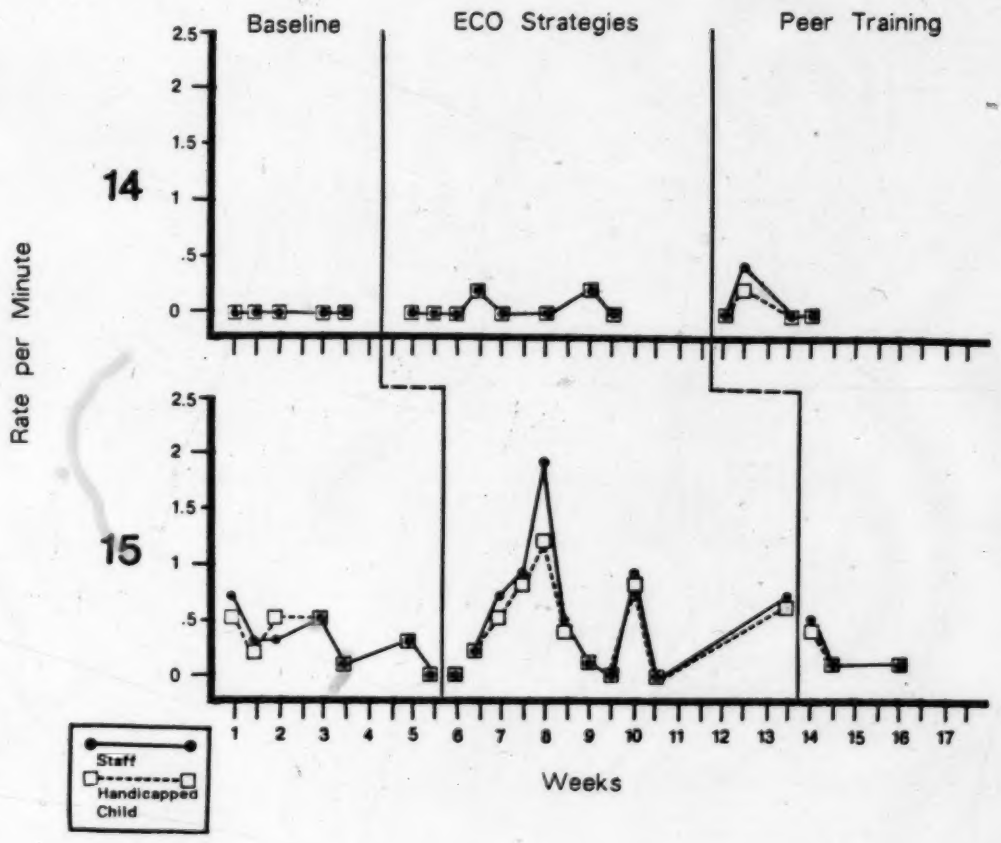


Figure 23

Rate of Turns: Staff and Handicapped Child

Rural Program 07



Research Question #5

As a result of training was there a significant increase in the length of turntaking exchanges between the instructional staff and the handicapped child?

In general, the data presented in Figures 24 through 30 indicated that there was a marked increase in the mean length of the turntaking exchanges associated with the introduction of the treatment for the majority of the subjects under investigation. However, in most cases, while a change in the level was evident, the data paths within the treatment phase were characterized by a considerable degree of variability and no marked trends were demonstrated. It would appear that while staff demonstrated the ability to increase the length of the turntaking exchanges, the behavior pattern was relatively unstable, and generally did not show an increasing trend over time.

Figure 24

Length of Turntaking: Staff and Handicapped Child

Urban Program 01

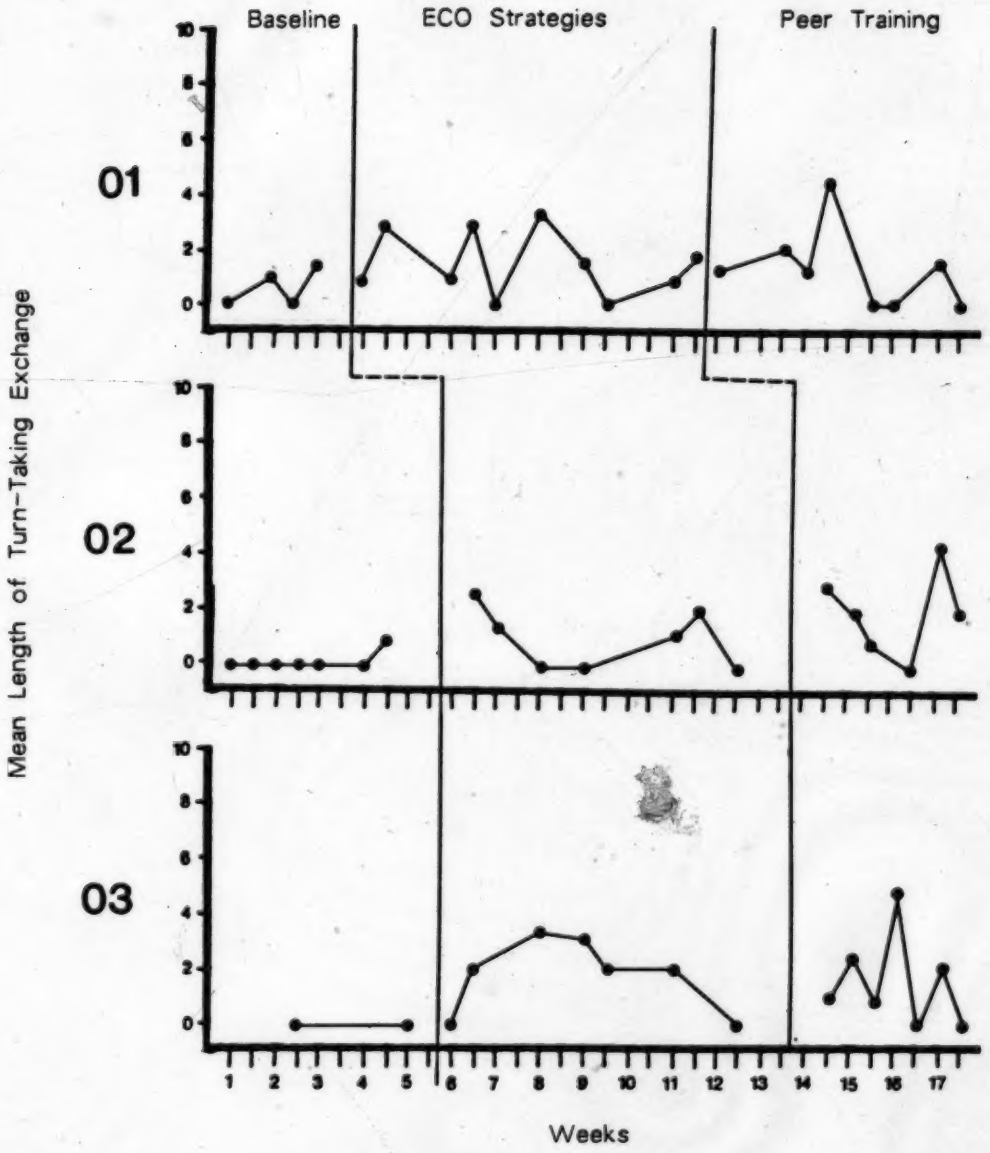


Figure 25

Length of Turntaking: Staff and Handicapped Child

Urban Program 02

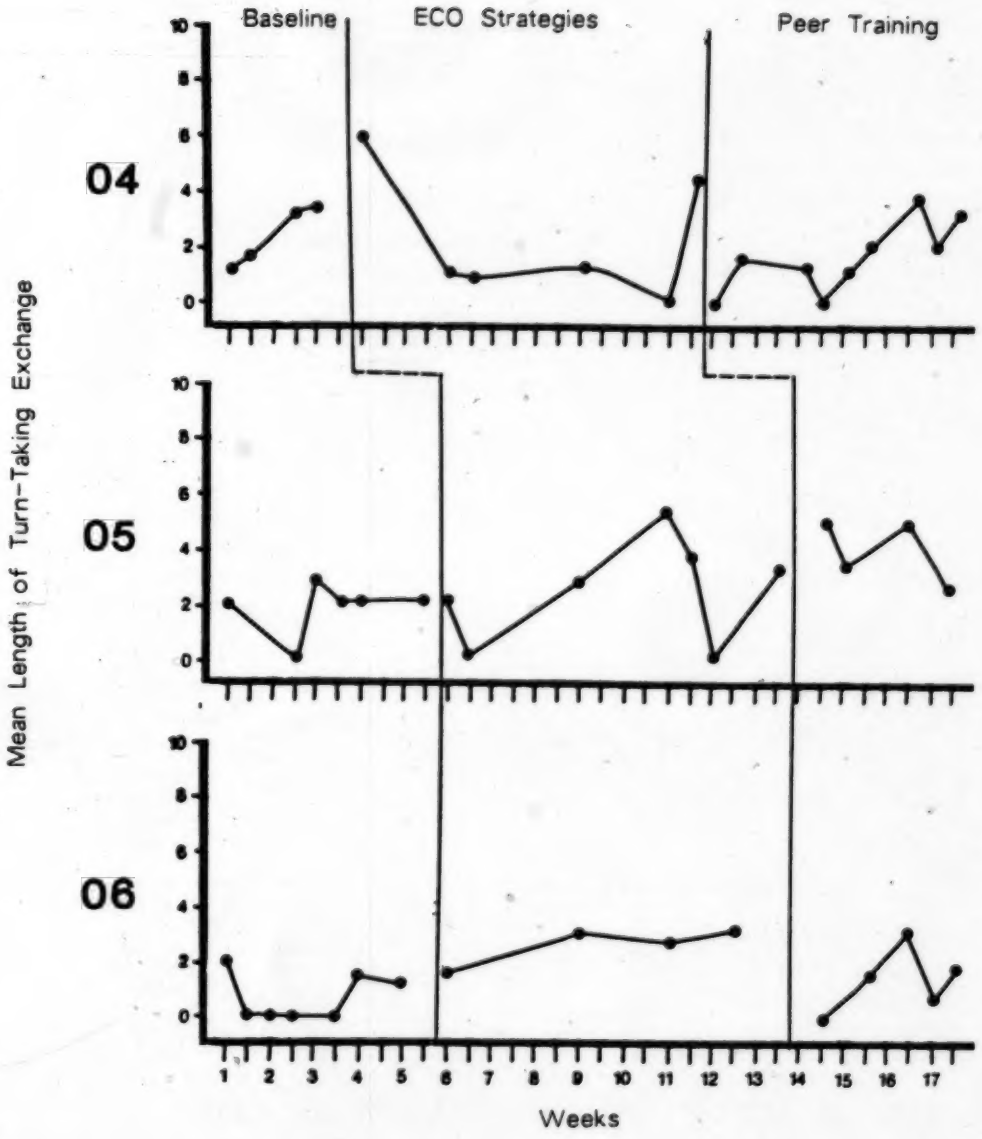


Figure 26

Length of Turntaking: Staff and Handicapped Child

Urban Program 03

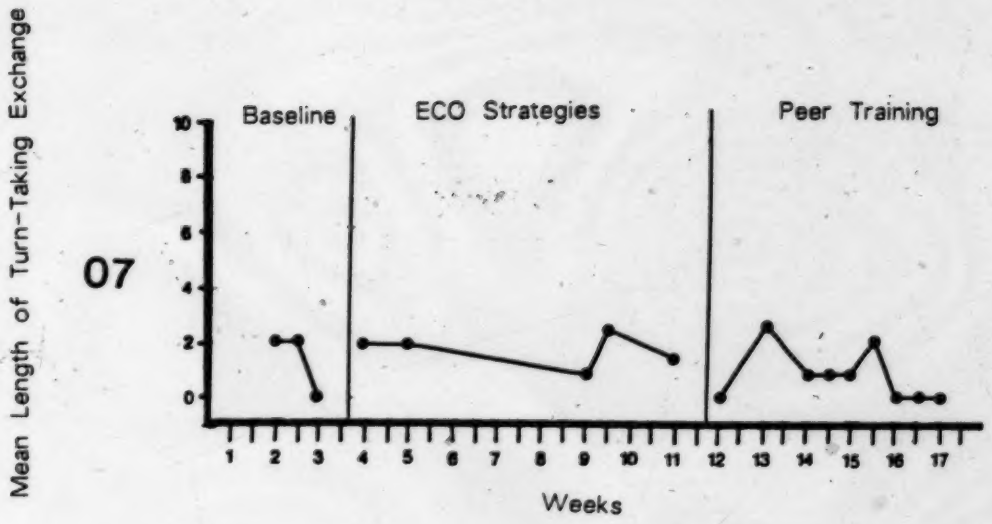


Figure 27

Length of Turntaking: Staff and Handicapped Child

Rural Program 04

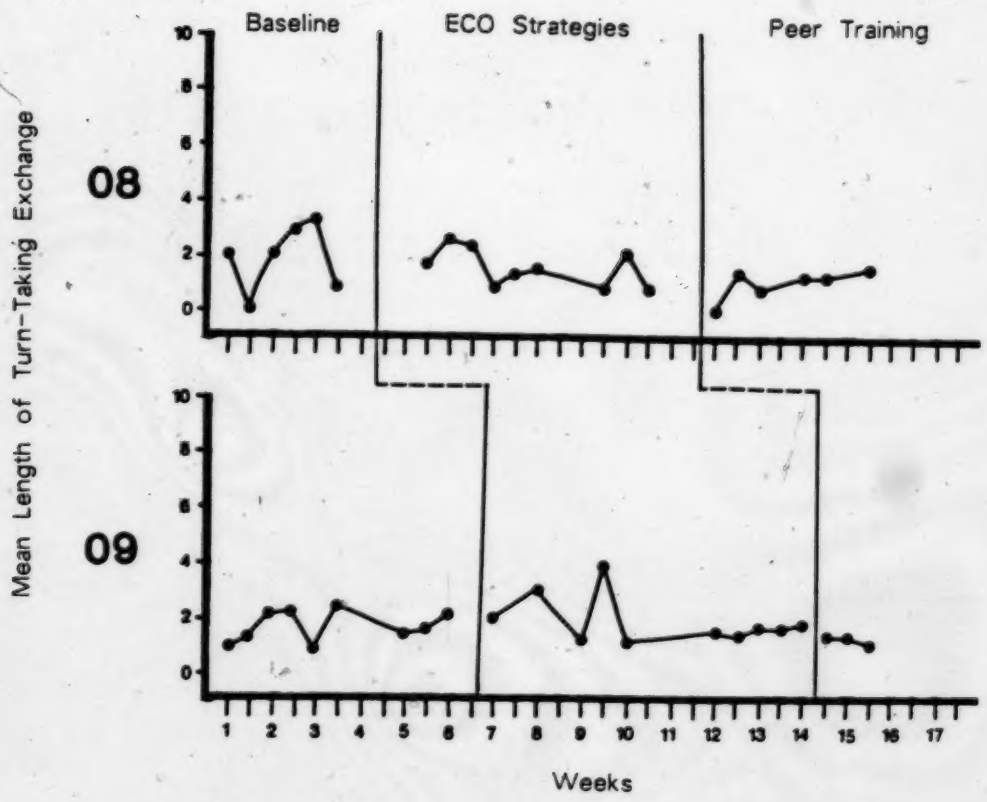


Figure 28

Length of Turntaking: Staff and Handicapped Child

Rural Program 05

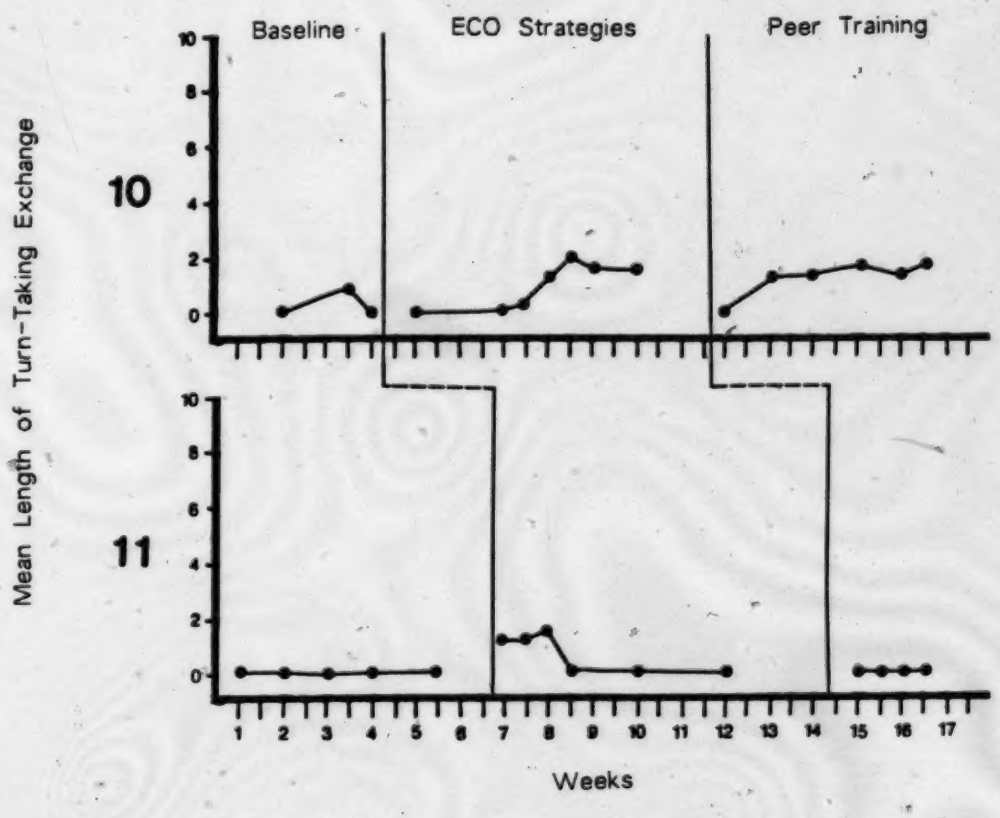


Figure 29

Length of Turntaking: Staff and Handicapped Child

Rural Program 06

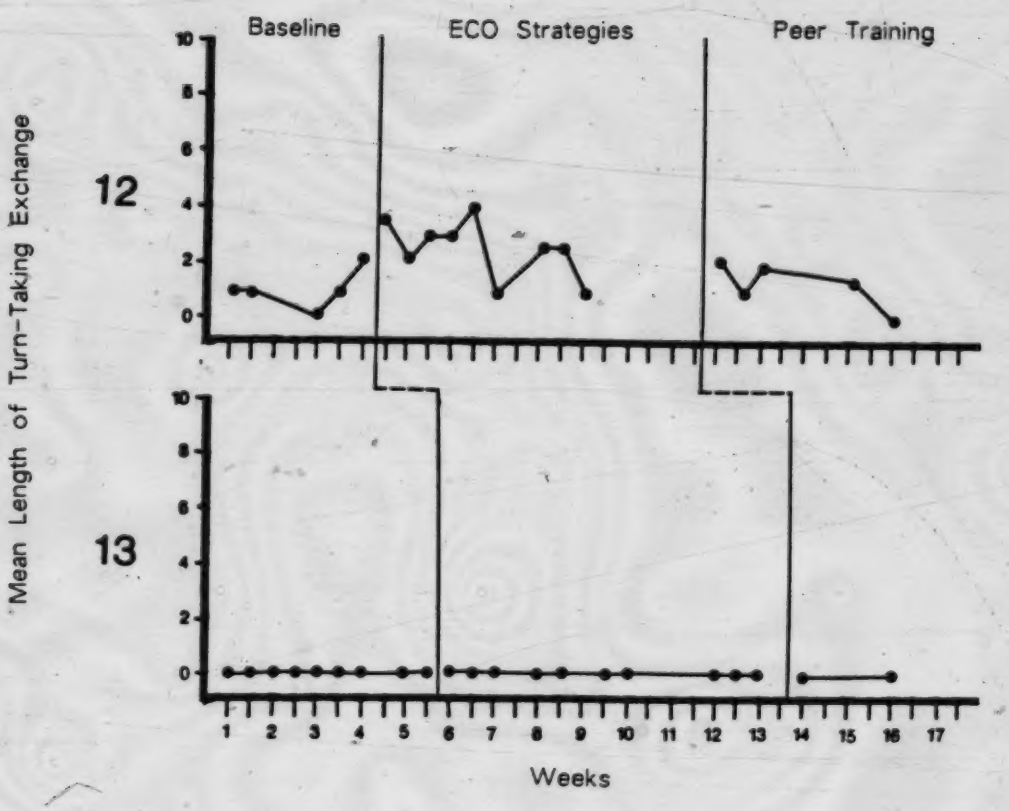
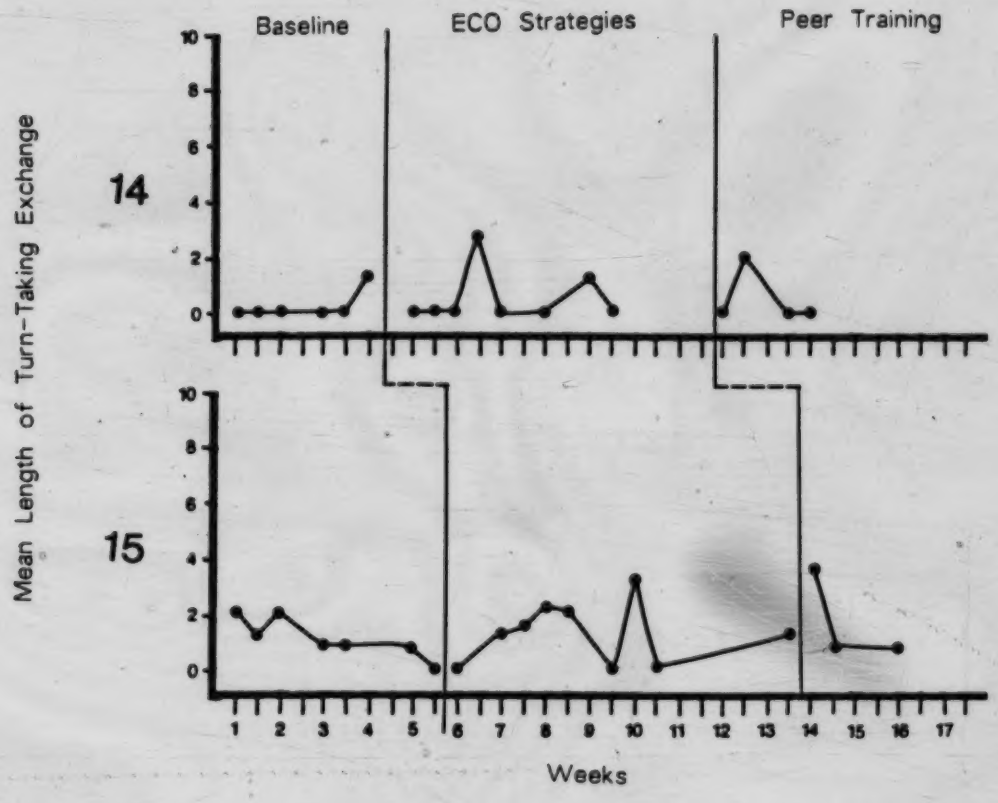


Figure 30

Length of Turntaking: Staff and Handicapped Child

Rural Program 07



Summary

The observational data gathered on staff/handicapped child interaction patterns indicates that, for a majority of the subjects, staff use of the skills presented during the first inservice module resulted in a significant increase in the rate of turntaking exchanges between the staff and their handicapped students. Staff demonstrated minimal use of imitation during their interactions with the students, and while signaling and prompting were used at a much higher rate, there was a lack of consistency in the use of these strategies across subjects. The majority of subjects also demonstrated an abrupt change following the introduction of the treatment in the length of the turntaking exchanges which occurred between the staff and the handicapped child. However, the observational data indicated that there was a considerable degree of variability seen in this behavior within the treatment phase, and no evident trend was seen across time. As well, it was noted that typically, the rate of turntaking exchanges and therefore, number of turns, occurred at a lower level following the implementation of the peer-mediated strategies. This decreased level of occurrence could have been a reflection of the increased amount of interaction occurring between the handicapped children and their peers, with the resulting decrease in the opportunity for turntaking with instructional staff.

Subjects 13 and 14 demonstrated very minimal or no change in behavior as a result of the introduction of the treatment. Although staff demonstrated some use of the signaling and prompting strategies, visual analysis typically revealed a considerable degree of variability in both occurance of these behaviors both across and within phases; thus the use of these strategies did not reliably increase following training. Additionally, subjects 10 and 12 demonstrated an abrupt change in behavior immediately following the implementation of the treatment, but the effects were rapidly diminished and the behaviors returned to baseline levels were re-established.

B. Inservice Module #2: Training Nonhandicapped Peers

Research Question #1 and #2

> The frequency of verbal and/or motoric behaviors which function to initiate social interaction directed towards the handicapped child by his/her nonhandicapped peers will increase.

The frequency of verbal and/or motoric behaviors which function to initiate a social interaction emitted by the handicapped child will increase.

In the following graphic presentation, the initiation behaviors of both the handicapped children as well as the nonhandicapped peers are presented simultaneously. Visual analysis of the data presented in Figures 31 through 37 reveals that the majority of the subjects demonstrated a significant increase in their rate of social initiations. However, the rate was relatively stable across phases for subjects 05, 08 and 09. Additionally, the rate of initiation behaviors directed towards the subjects typically increased as the treatment was implemented, although for a number of subjects (01, 04, 06, 11, 12, 14, 15) there was a considerable overlap in measures across phases. However, it was noted that for most of these subjects, the rate of initiations emitted by the peers was generally more stable, and did not exhibit the considerable variability which was demonstrated during the baseline phase. Hence, it would appear that while the general level of initiation behavior did not change abruptly, the handicapped children were receiving these initiations at a more stable rate over time.

However, it was noted that one subject, 10, demonstrated little or no change in the rate of initiation behavior: the target child was shown to initiate social interactions only during one observation session, although this behavior did occur during the peer training phase the peers exhibited a minimal increase in behaviors directed towards this subject, which resulted in a minor increase in the level of behavior associated with the treatment phase.

Figure 31

Rate of Social Initiations:

Peers and Handicapped Child

Urban Program 01

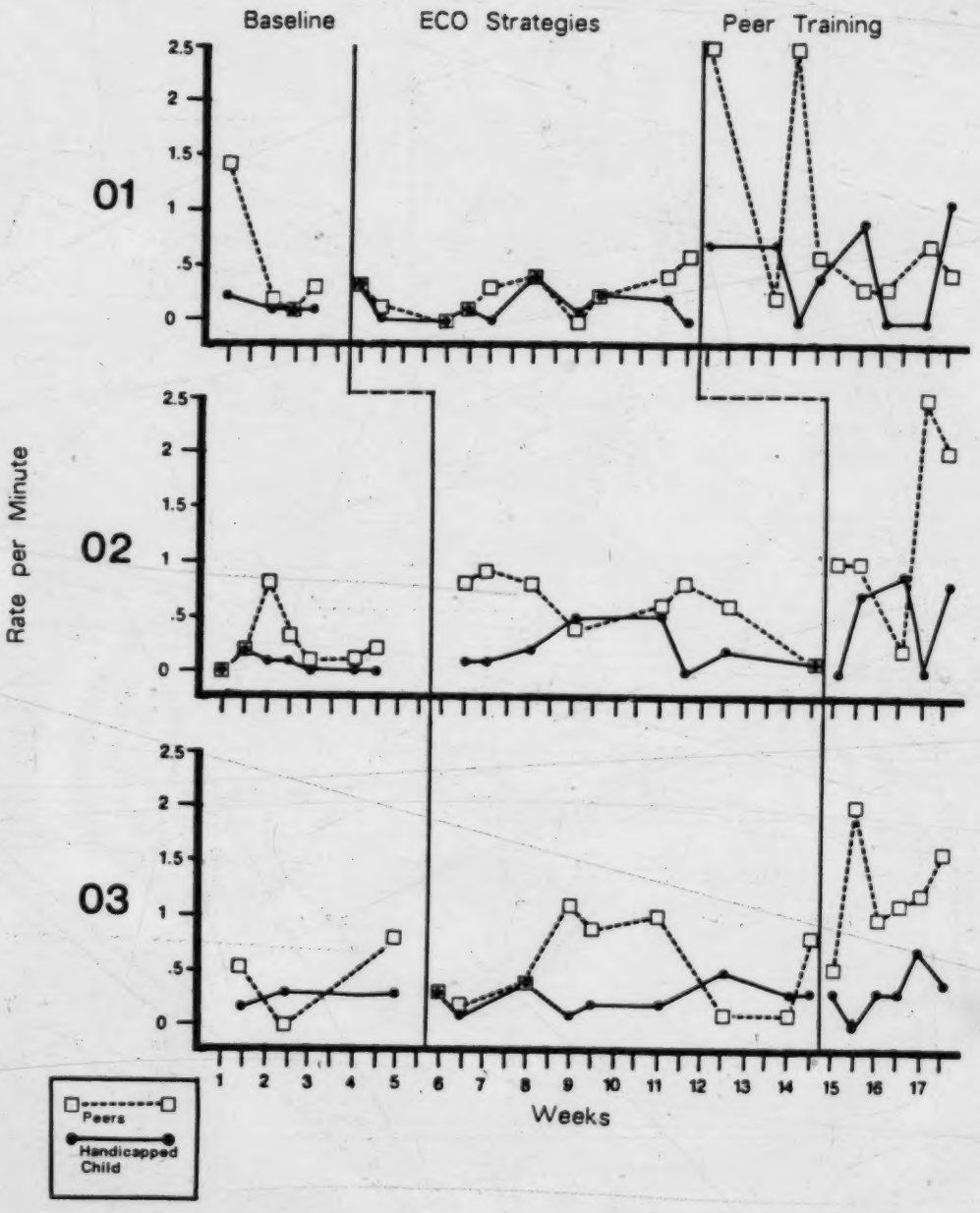


Figure 32

Rate of Social Initiations:

Peers and Handicapped Child

Urban Program 02

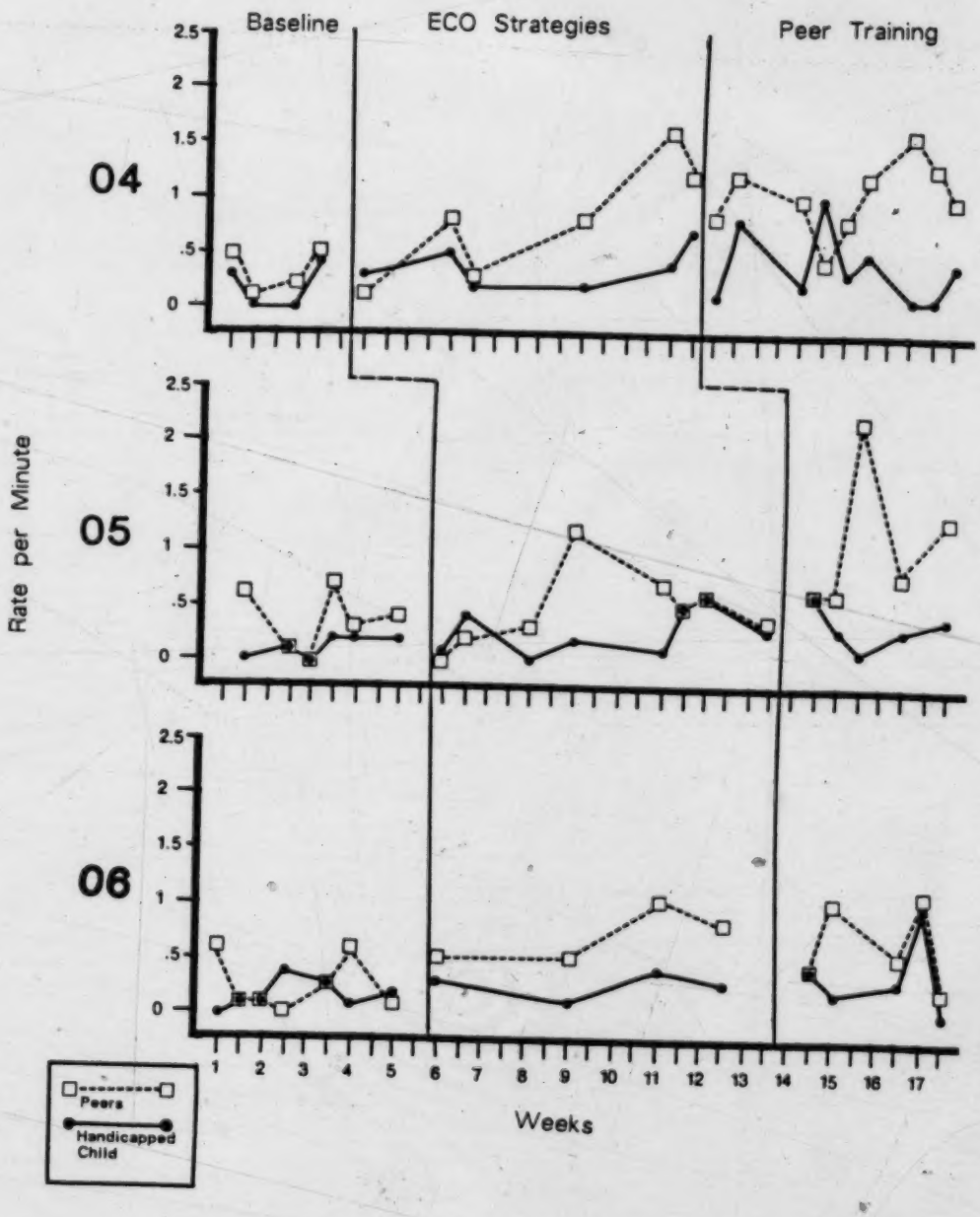


Figure 33

Rate of Social Initiations:

Peers and Handicapped Child

Urban Program 03

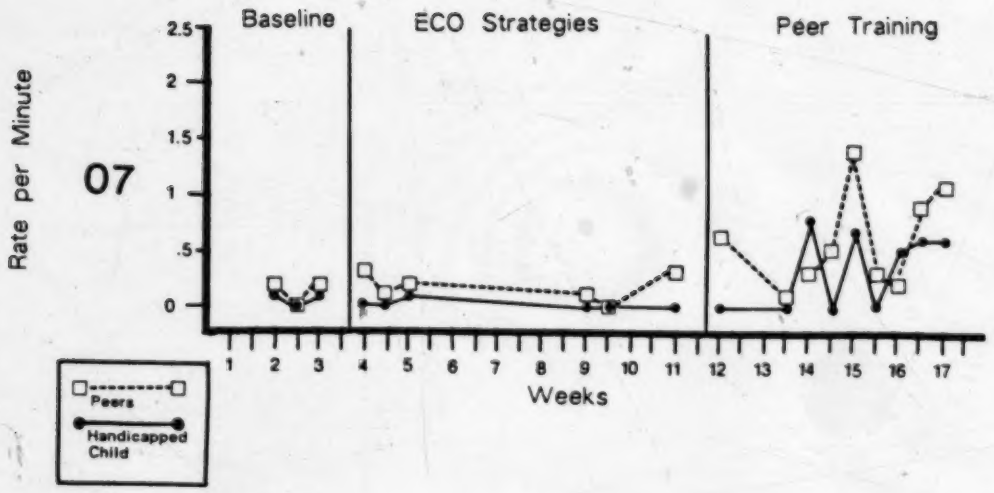


Figure 34

Rate of Social Initiations:

Peers and Handicapped Child

Rural Program 04

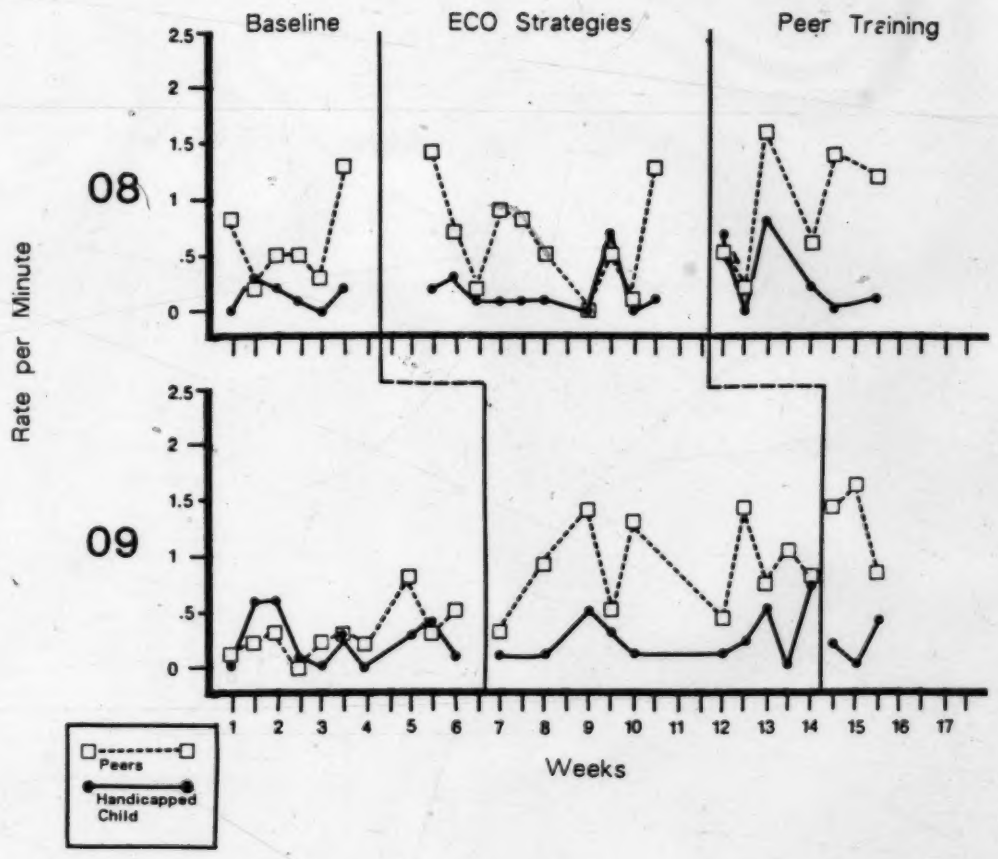


Figure 35

Rate of Social Initiations:

Peers and Handicapped Child

Rural Program 05

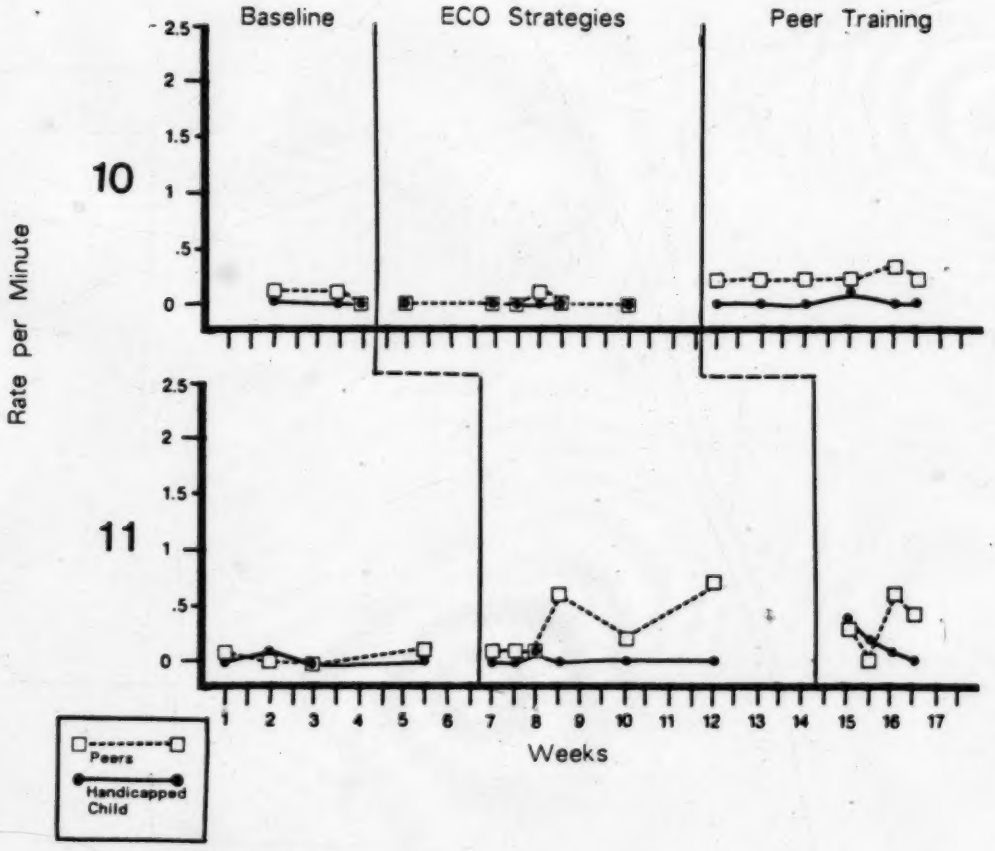


Figure 36

Rate of Social Initiations:

Peers and Handicapped Child

Rural Program 06

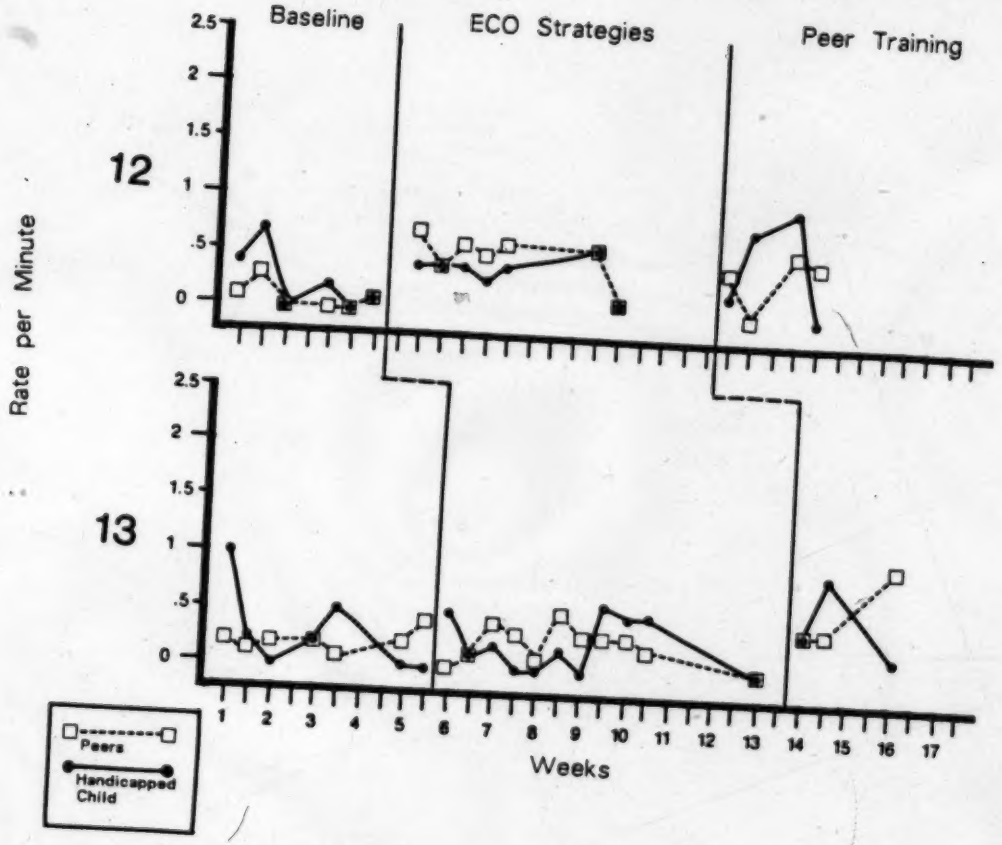
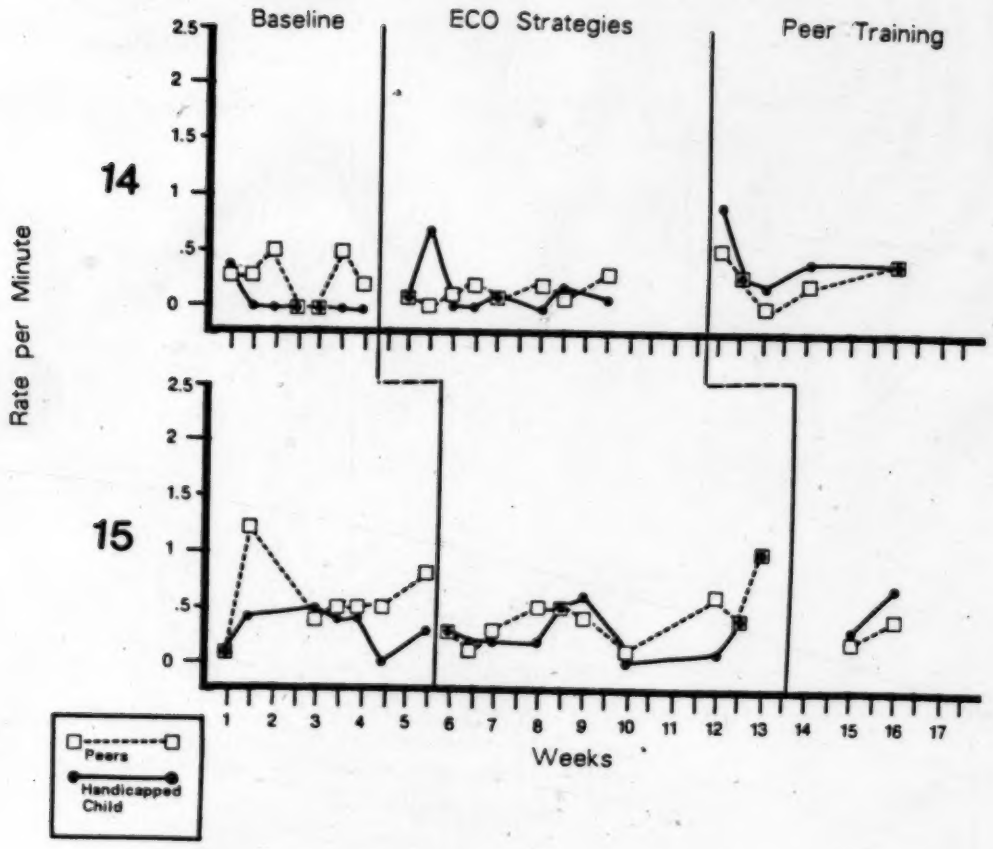


Figure 37

Rate of Social Initiations:

Peers and Handicapped Child

Rural Program 07



Research Questions #3 and #4

As a result of training, was there a significant increase in the rate of social behaviors exhibited by the nonhandicapped peers during interactions with the handicapped child?

As a result of training, was there a significant increase in the number of social behaviors exhibited by the handicapped child?

Again, the total number of interactive behaviors exhibited by the handicapped children and the nonhandicapped peers is presented simultaneously in Figures 38 through 44. In general, three different behavior patterns characterized the treatment effects exhibited by the research subjects. First, one group of subjects (03, 04, 06, 07, 08, 11, 13 and 15) demonstrated an increased level of interactive behaviors subsequent to the implementation of the peer mediated treatment. Typically, this increase was a continuation of the upward trend which was demonstrated during the first treatment phase. However, the level of behavior exhibited during the treatment phases was significantly higher than that observed during the baseline phase.

Second, the data obtained for subjects 05, 09 and 14 demonstrated a considerable degree of variability in behavior across phases. Given the significant overlap of the measures across phases, no definitive statements concerning treatment effects can be made. However, it was noted in the case of subject 05 the introduction of the treatment was associated with increased stabilization of the level of the behavior. The third characteristic behavior pattern was demonstrated by subjects 01, 02, 10, and 12 who showed little or no response to the introduction of the treatment. The baseline level of behavior was consistently maintained across phases.

The rates of interactive behaviors exhibited by the nonhandicapped peers was also characterized by a general lack of consistency across subjects. Again, three different behavior patterns characterized the behaviors exhibited by the peers. In the first case, the peers interacting with subjects 03, 04, 06, 07, 08 and 15 demonstrated an increase in the level of social behavior following the introduction of the treatment, and in most cases this increase was maintained or was characterized by an increasing upward trend across time. Secondly, it was seen that the rate of peer social behaviors directed towards subjects 01, 02, 05, 09, 11, 12, 13 and 14 remained relatively stable across phases. However, it

should be noted that for three of these subjects (01, 02 and 03) the peer-mediated strategies included only the joint task activities and social reinforcement as other classroom programming demands precluded the possibility of training peers to socially initiate. Finally, it was noted that peers interacting with subject 10 demonstrated very minimal levels of social interaction behaviors, a pattern which remained relatively stable across time.

Figure 38

Rate of Social Behaviors:

Peers and Handicapped Child

Urban Program 01

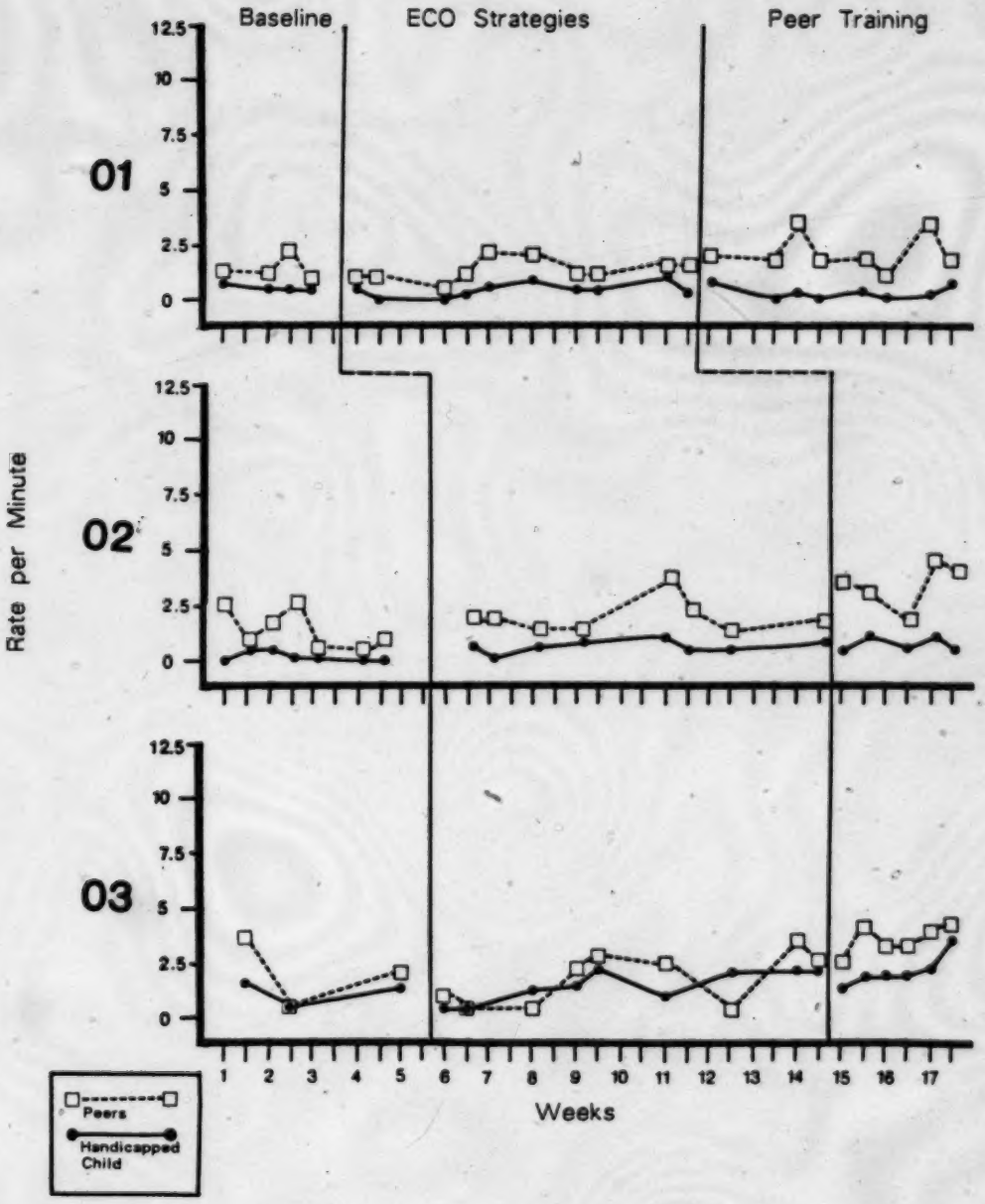


Figure 39

Rate of Social Behaviors:

Peers and Handicapped Child

Urban Program 02

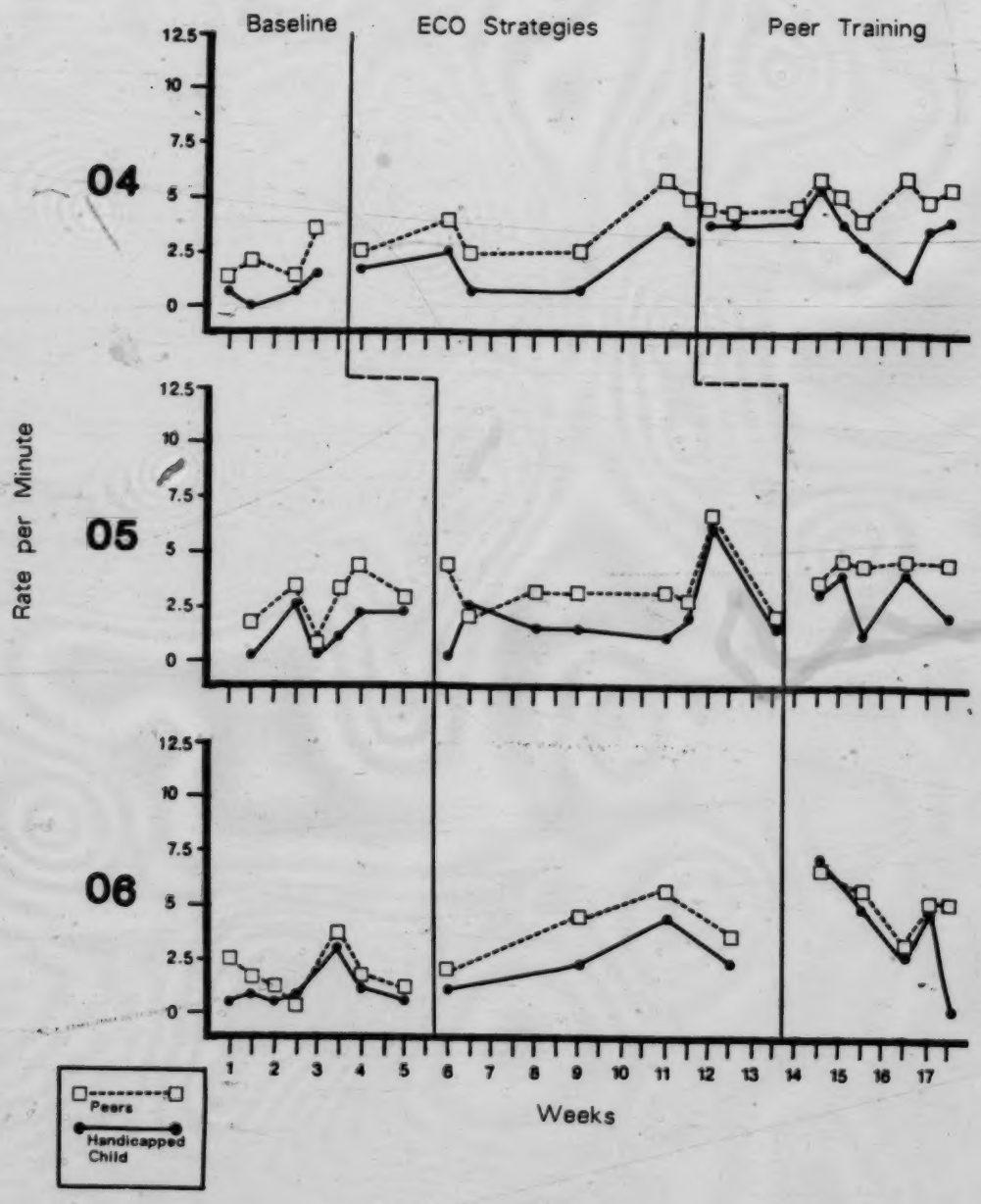


Figure 40

Rate of Social Behaviors:

Peers and Handicapped Child

Urban Program 03

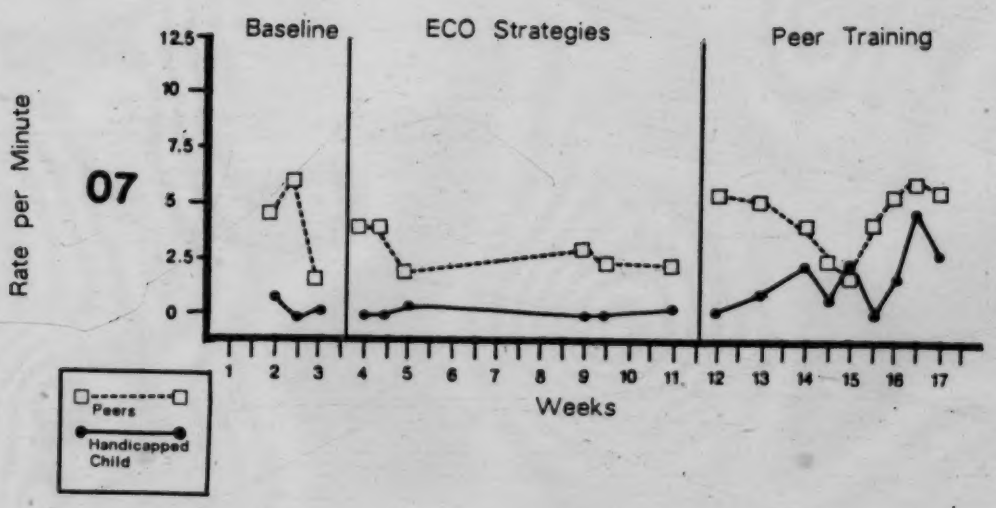


Figure 41

Rate of Social Behaviors:

Peers and Handicapped Child

Rural Program 04

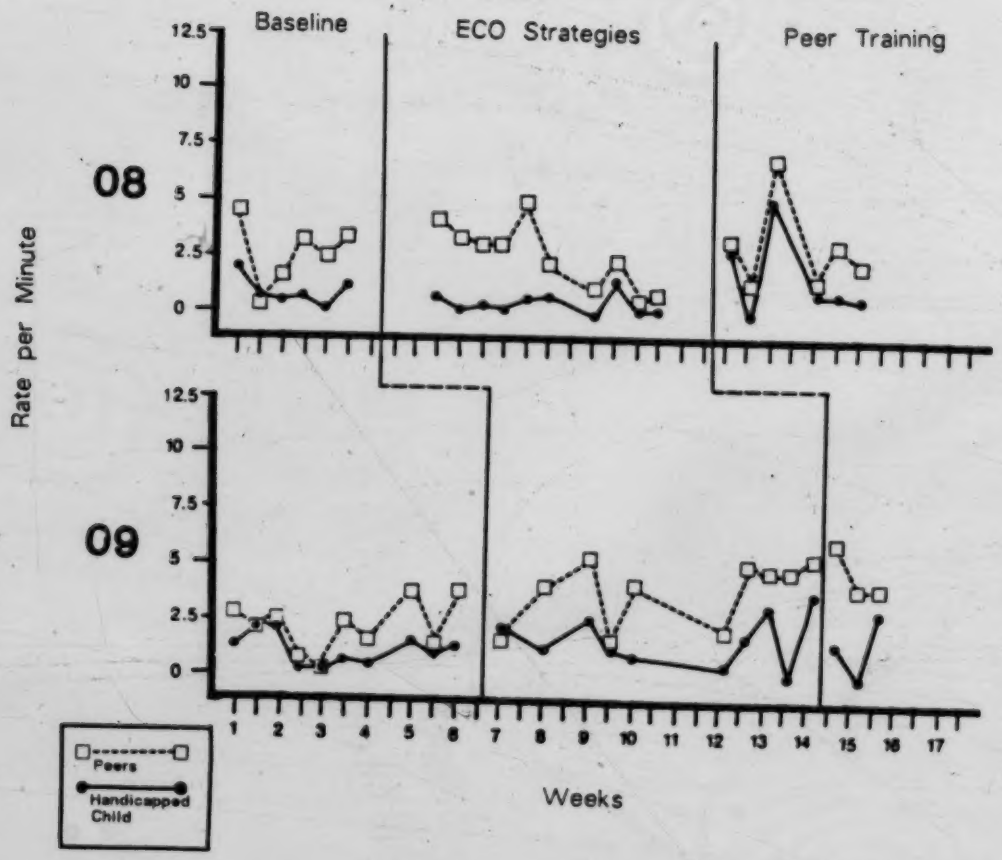


Figure 42

Rate of Social Behaviors:

Peers and Handicapped Child

Rural Program 05

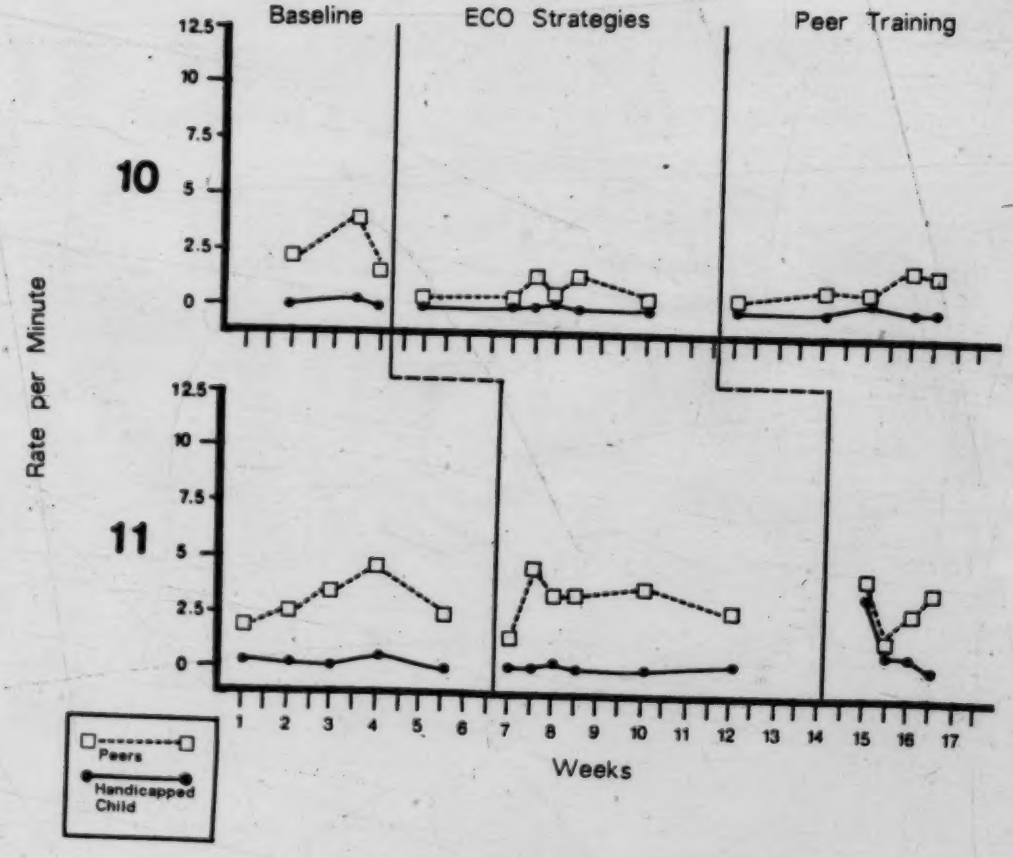


Figure 43

Rate of Social Behaviors:

Peers and Handicapped Child

Rural Program 06

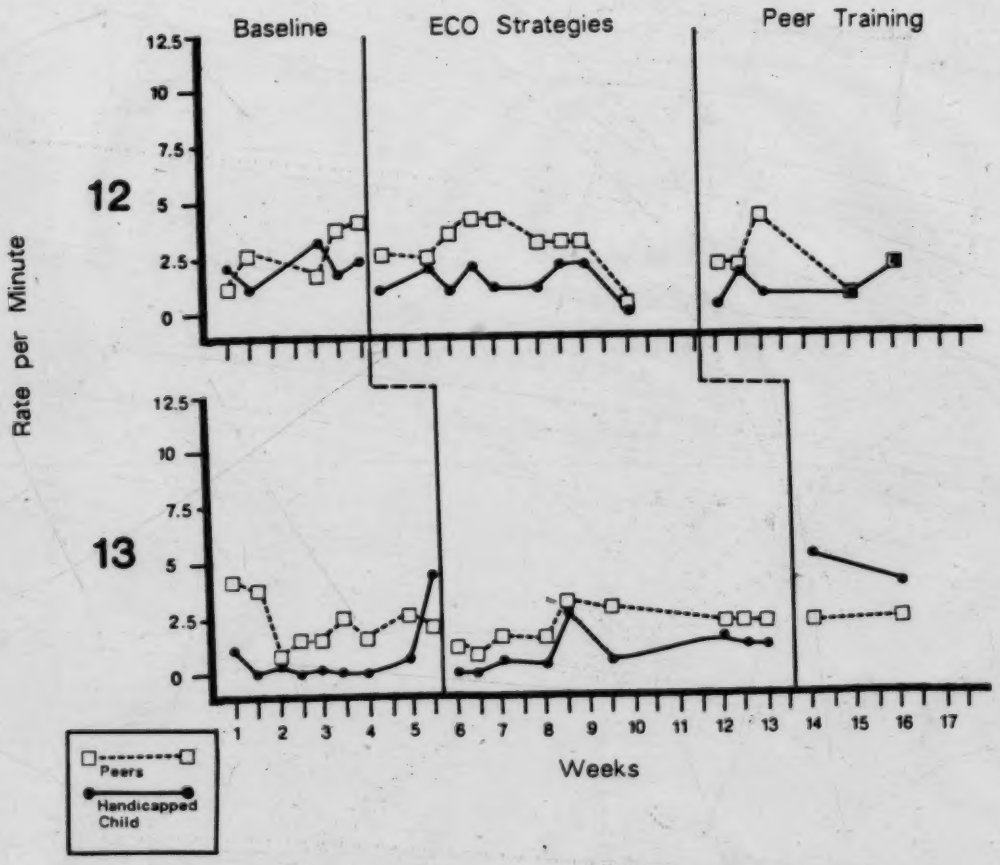
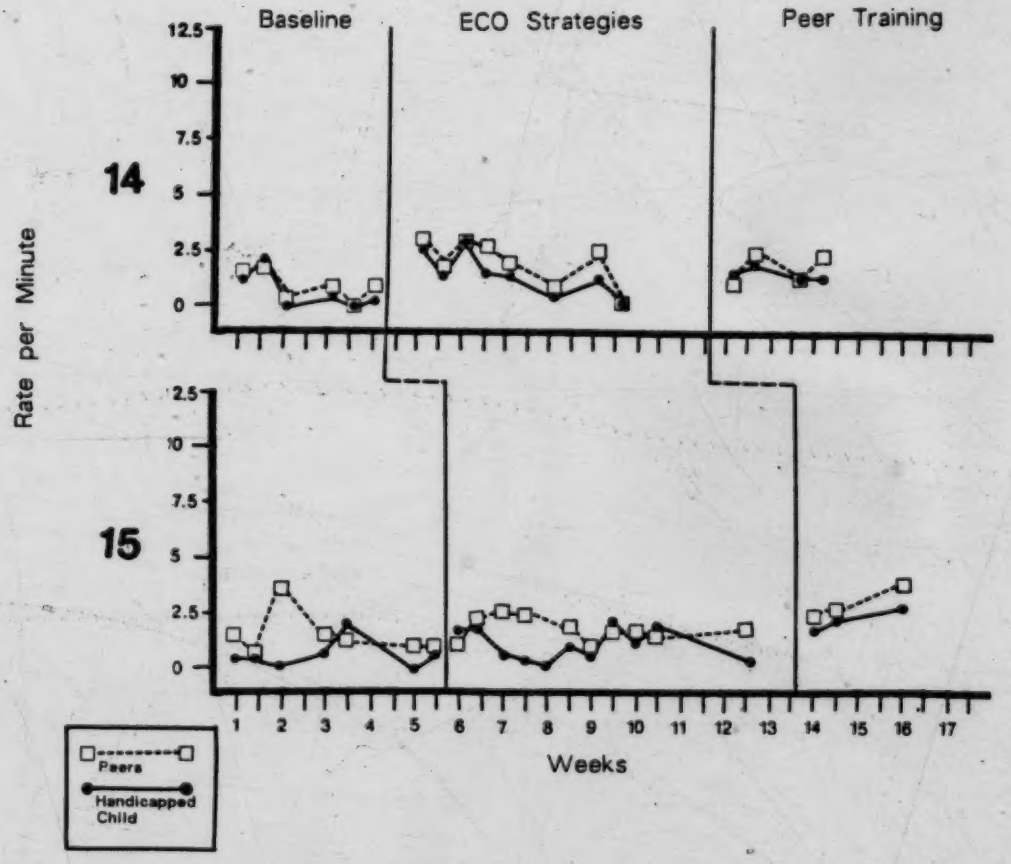


Figure 44

Rate of Social Behaviors:

Peers and Handicapped Child

Rural Program 07



Research Question #5

As a result of training, was there a significant increase in the frequency of adult praise, which was contingent on social interaction between children outside the structured interaction episodes?

Unfortunately, the self recording of contingent social praise was found to be an inappropriate measure for use within kindergarten classrooms. Instructional staff generally found that the use of paper and pencil recording was inconvenient for them, as it required them to leave their students momentarily in order to complete the task. Since this was not always feasible, the staff reported that the collection of accurate data was not possible through use of this method. As a result, a number of centres, while continuing to use contingent praise, did not chose to employ the self-recording procedure. Those centres who agreed to continue monitoring this behavior reported that they believed the results obtained to be not representative of the behavior demonstrated in their classrooms. As a result, the data obtained for participating centres is presented, but caution should be exercised in the interpretation of the results.

In general, the data presented in Table 6 indicates a considerable degree of variability in the recorded use of the rate of contingent praise over the course of the peer-mediated treatment phase. As well, the rate of occurance of this behavior recorded by staff in centres 06 and 07 demonstrated a decreasing trend over time. Staff members attributed this effect to the fact that the students were frequently taken on field trips during the last weeks of the study. As a result, the amount of time spent in the classroom setting was significantly reduced during this time, and the rate of occurance of social reinforcement was not recorded during these outings.

Table 6

Contingent Social Praise: Rate per Week

Centre	Week:							
	10	11	12	13	14	15	16	17
01	--	--	--	--	--	--	--	--
02	--	--	--	--	--	--	--	--
03	--	--	--	--	--	--	--	--
04	--	--	--	--	--	--	--	--
05	--	--	--	--	--	--	--	--
06	--	--	30	34	36	15	21	--
07	--	--	25	6	27	18	45	--

Research Question #6

As a result of training, was there a significant increase in the rate of turntaking exchanges between the handicapped child and his/her nonhandicapped peers?

Visual analysis of the data presented in Figures 45 through 51 indicates that there is a general lack of consistency across subjects in the rate of occurance of turntaking exchanges. It was demonstrated that subjects 03, 05, 07, 08, 09 and 15 exhibited an increase in the rate of turntaking exchanges following the implementation of treatment. Subjects 01, 02, 04, 06, 12 and 14 demonstrated minimal change in the rate of turntaking exchanges, as the level of behavior remained relatively stable across the baseline and treatment phases. Finally, it was noted that subjects 10, 11 and 13 were observed to engage in a very minimal level, or no turntaking exchanges with the nonhandicapped peers.

Figure 45

Rate of Turntaking Exchanges:

Peers and Handicapped Child

Urban Program 01

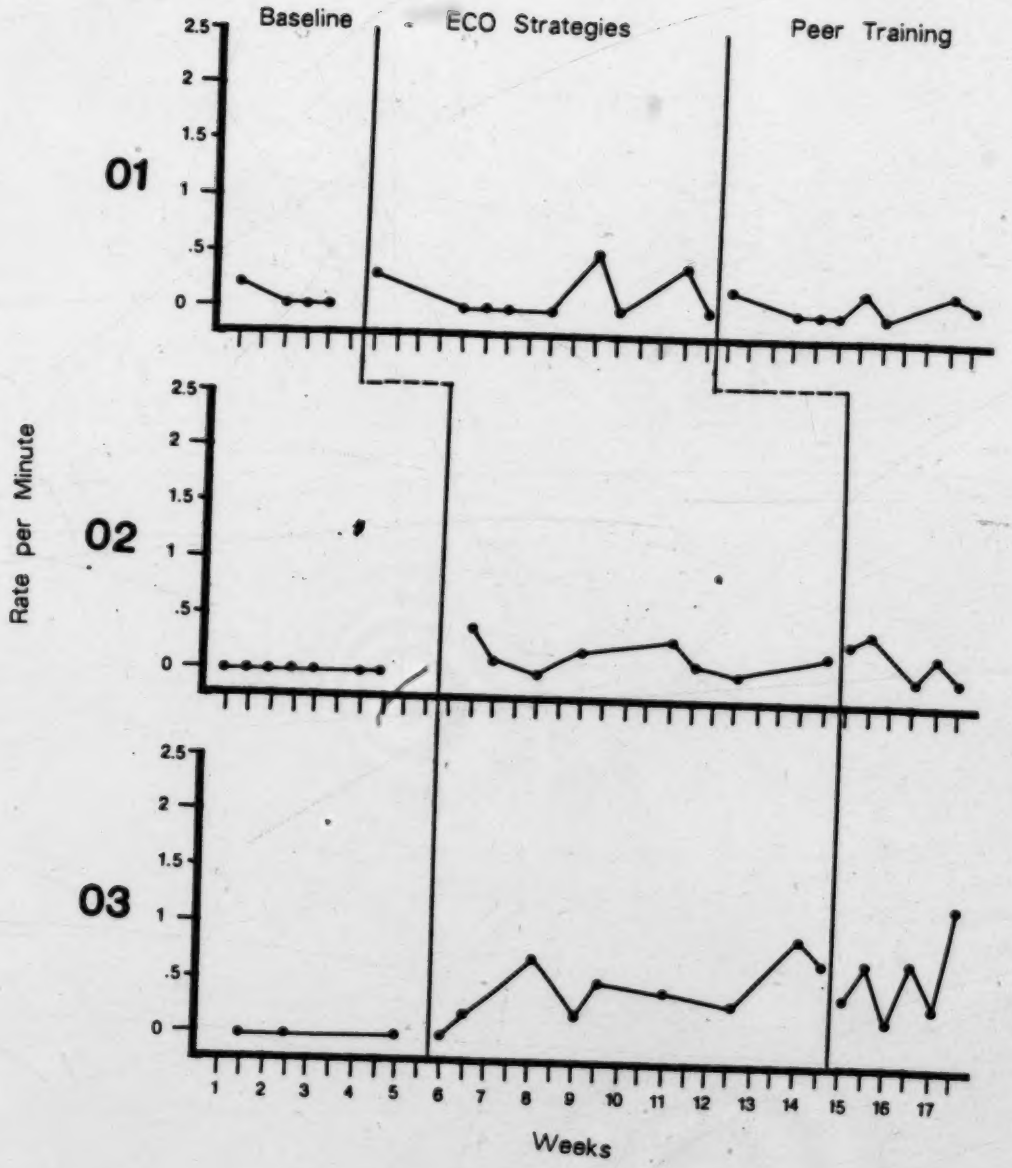


Figure 46

Rate of Turntaking Exchanges:

Peers and Handicapped Child

Urban Program 02

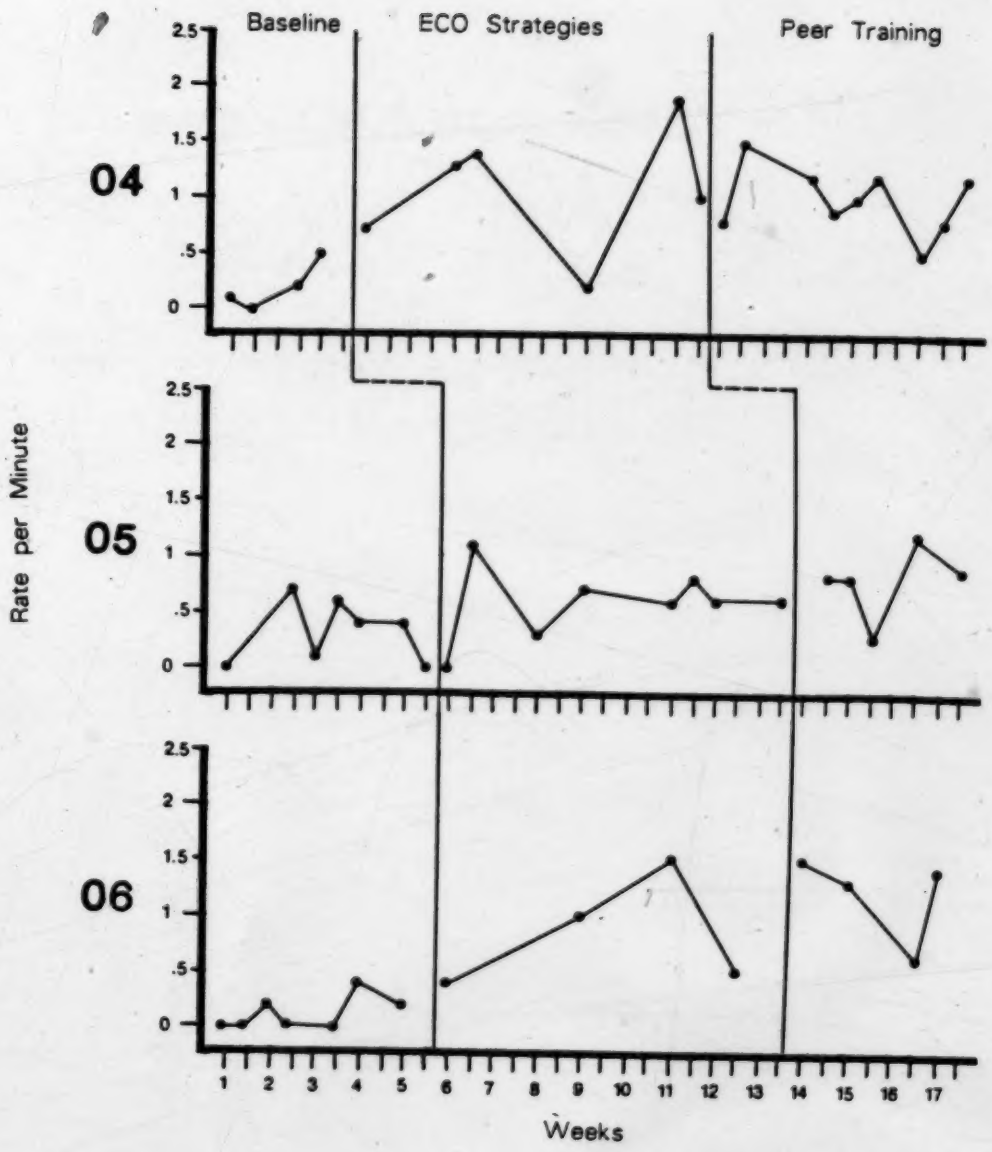


Figure 47

Rate of Turntaking Exchanges:

Peers and Handicapped Child

Urban Program 03

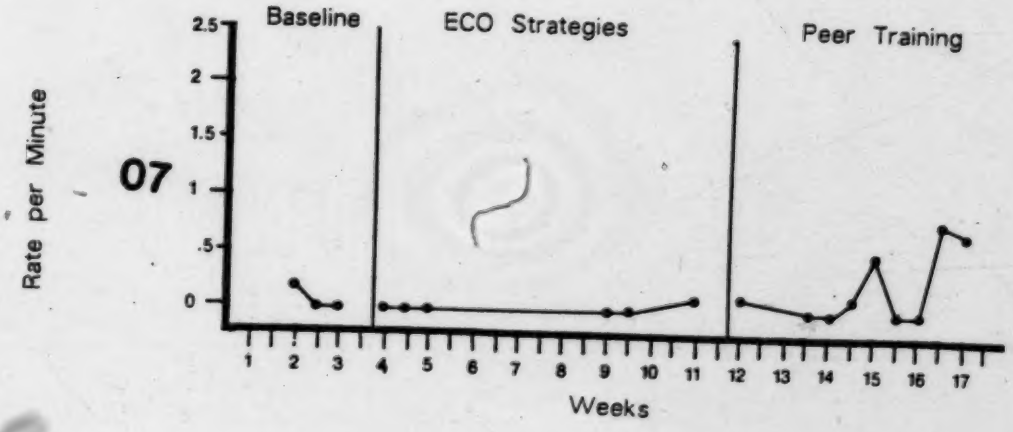


Figure 48

Rate of Turntaking Exchanges:

Peers and Handicapped Child

Rural Program 04

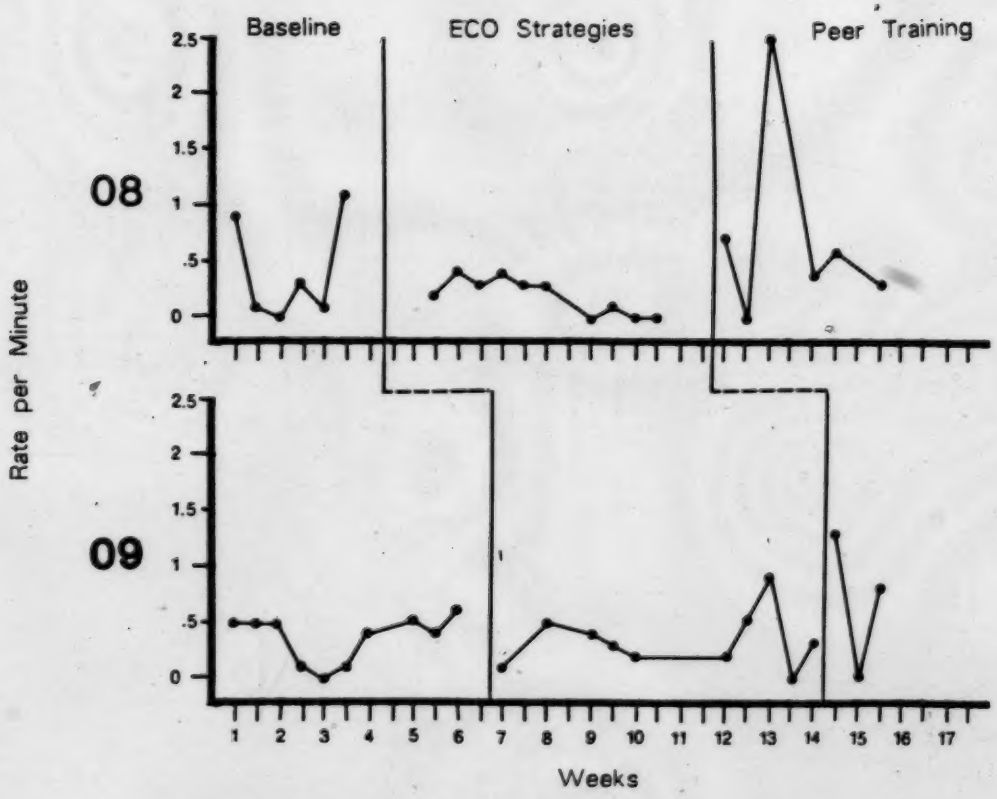


Figure 49

Rate of Turntaking Exchanges:

Peers and Handicapped Child

Rural Program 05

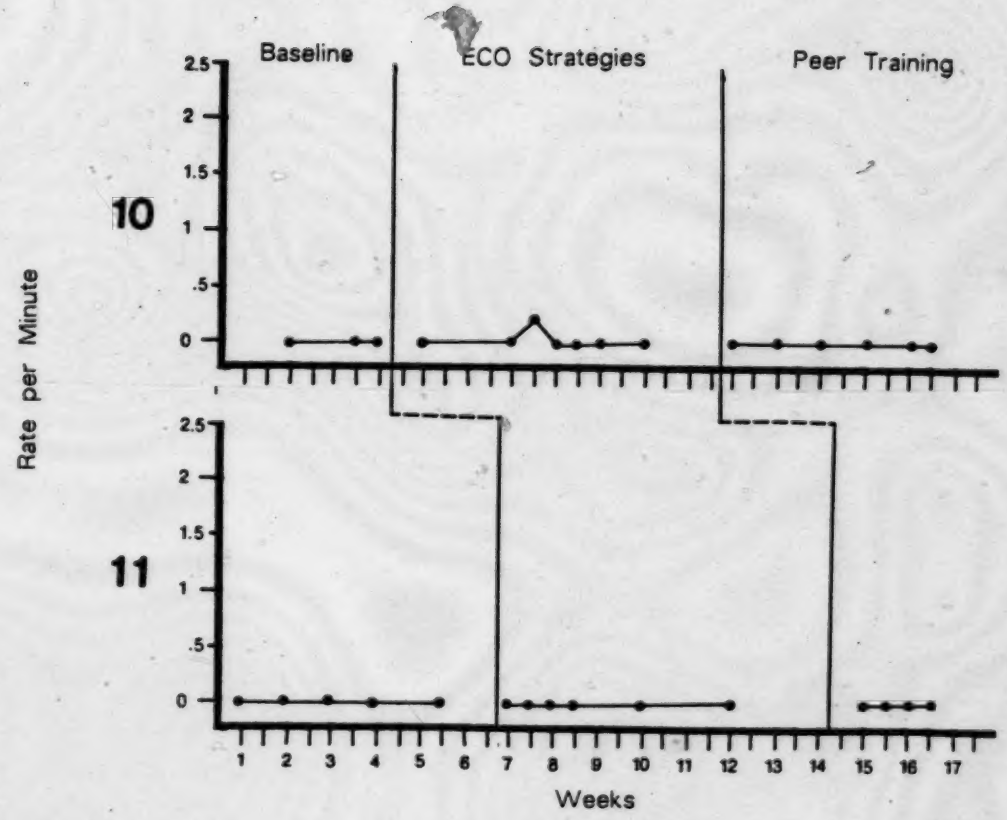


Figure 50

Rate of Turntaking Exchanges:

Peers and Handicapped Child

Rural Program 06

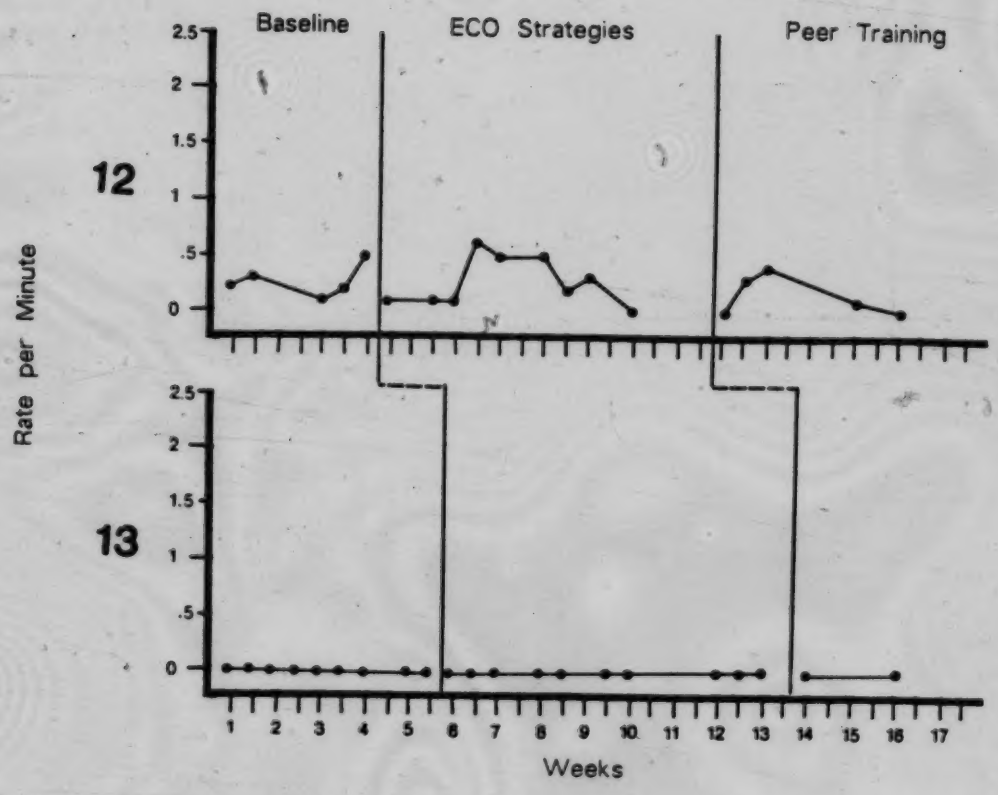
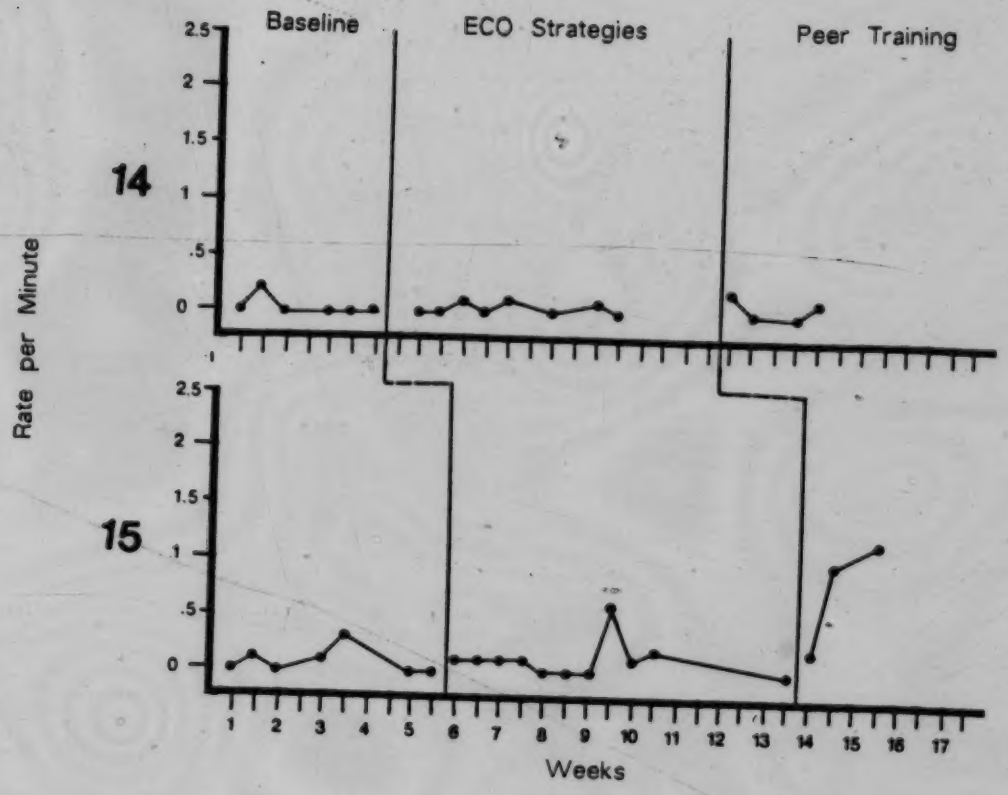


Figure 51

Rate of Turntaking Exchanges:

Peers and Handicapped Child

Rural Program 07



Research Question #7

> As a result of training, was there a significant increase in the length of the turntaking exchanges between the handicapped child and his/her nonhandicapped peers?

As was demonstrated previously with the instructional staff, there was typically no significant upward trend in the length of the turntaking exchanges between the subjects and their peers across time (See Figures 52-57). The exchanges were typically brief and were maintained at a relatively stable level throughout the treatment phase. However, subjects 04 and 06 did demonstrate a moderate increase in length which was associated with the introduction of the peer mediated strategies.

Summary

In general, it was seen that there was a significant degree of variability seen across subjects in their response to the peer-mediated treatment. The interpretation of these results as well as the data obtained in the evaluation of the first inservice module will be discussed in Chapter Six.

Figure 52

Length of Turntaking:

Peers and Handicapped Child

Urban Program 01

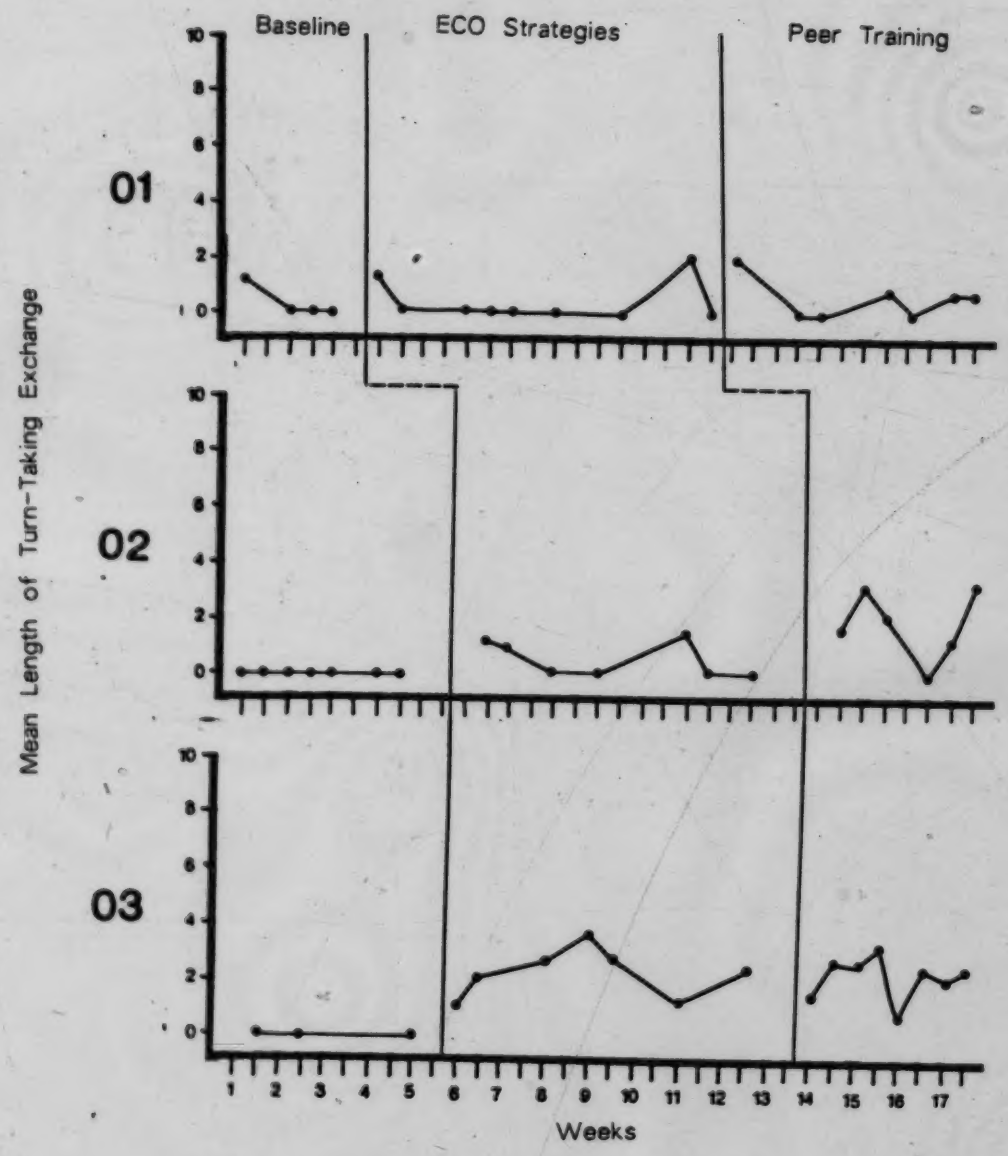


Figure 53

Length of Turntaking:

Peers and Handicapped Child

Urban Program 02

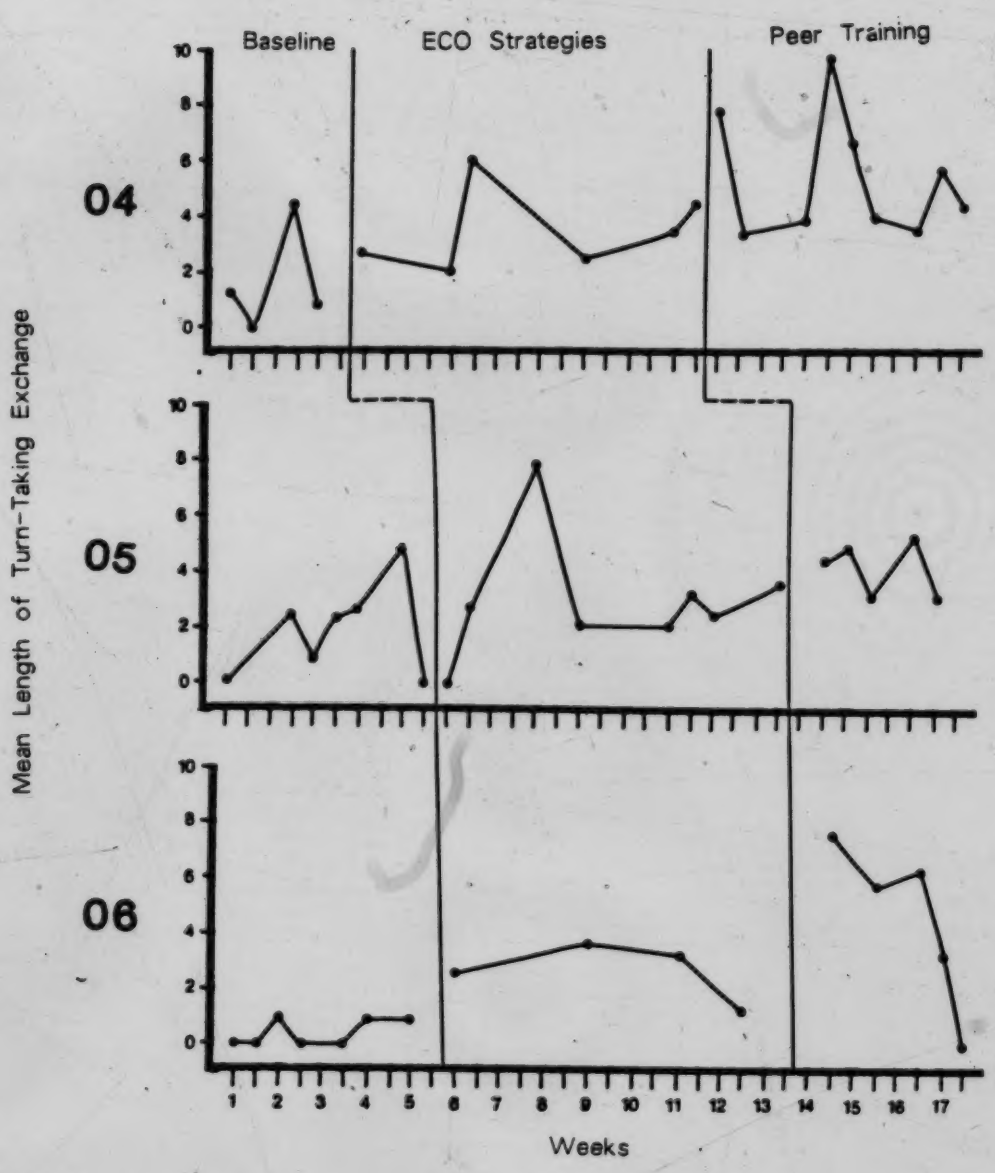


Figure 54

Length of Turntaking:

Peers and Handicapped Child

Urban Program 03

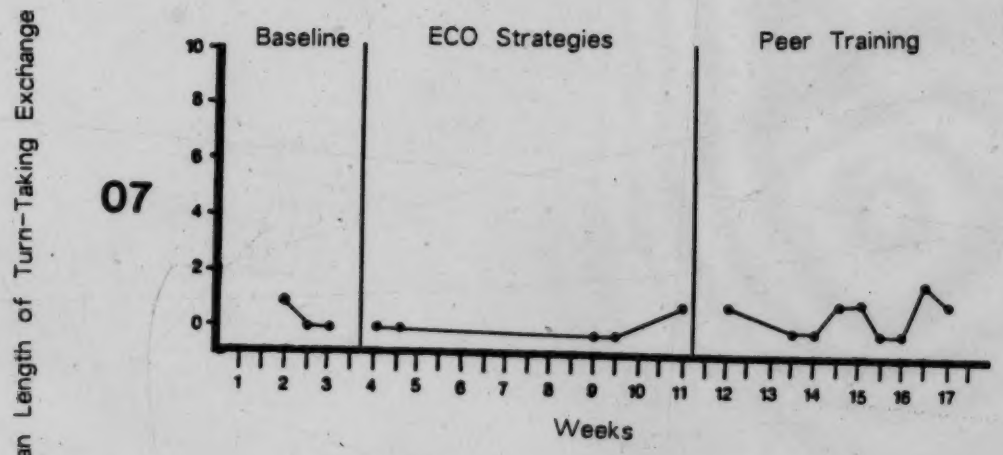


Figure 55

Length of Turntaking:

Peers and Handicapped Child

Rural Program 04

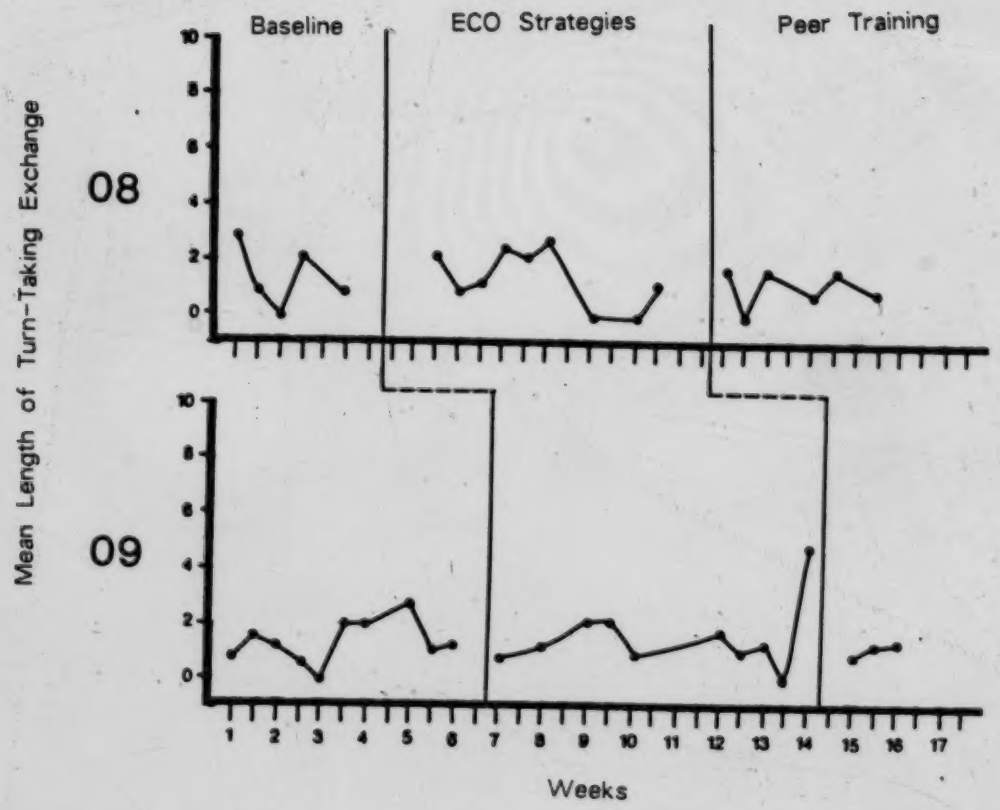


Figure 56

Length of Turntaking:

Peers and Handicapped Child

Rural Program 05

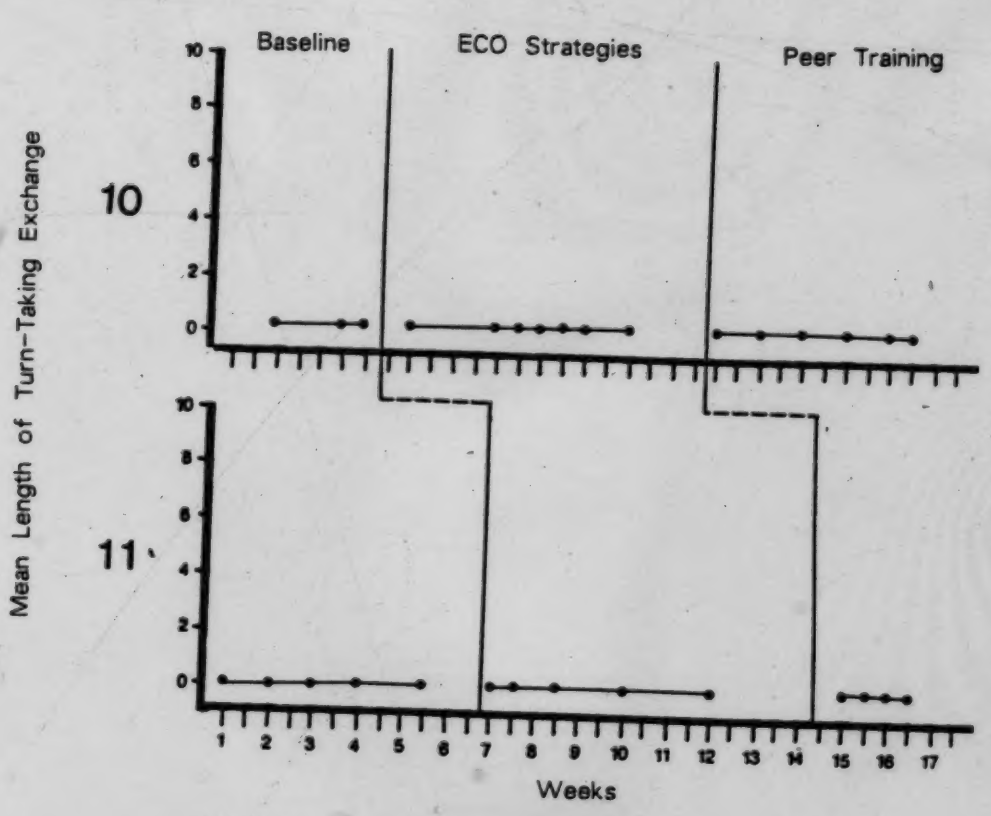


Figure 57

Length of Turntaking:

Peers and Handicapped Child

Rural Program 06

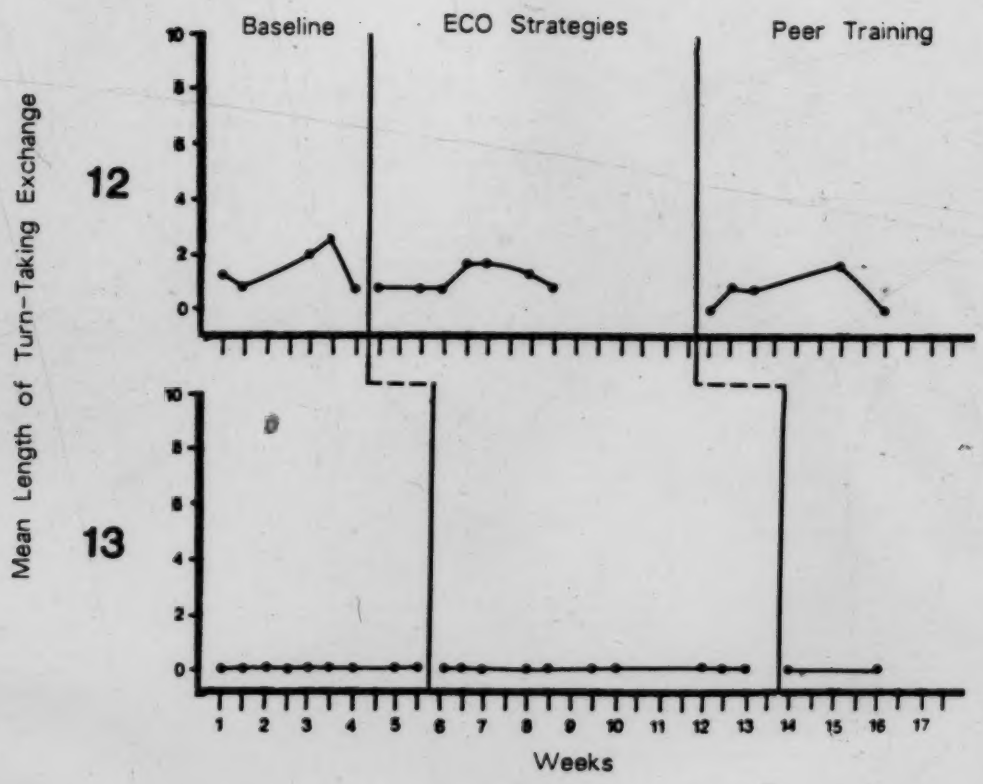
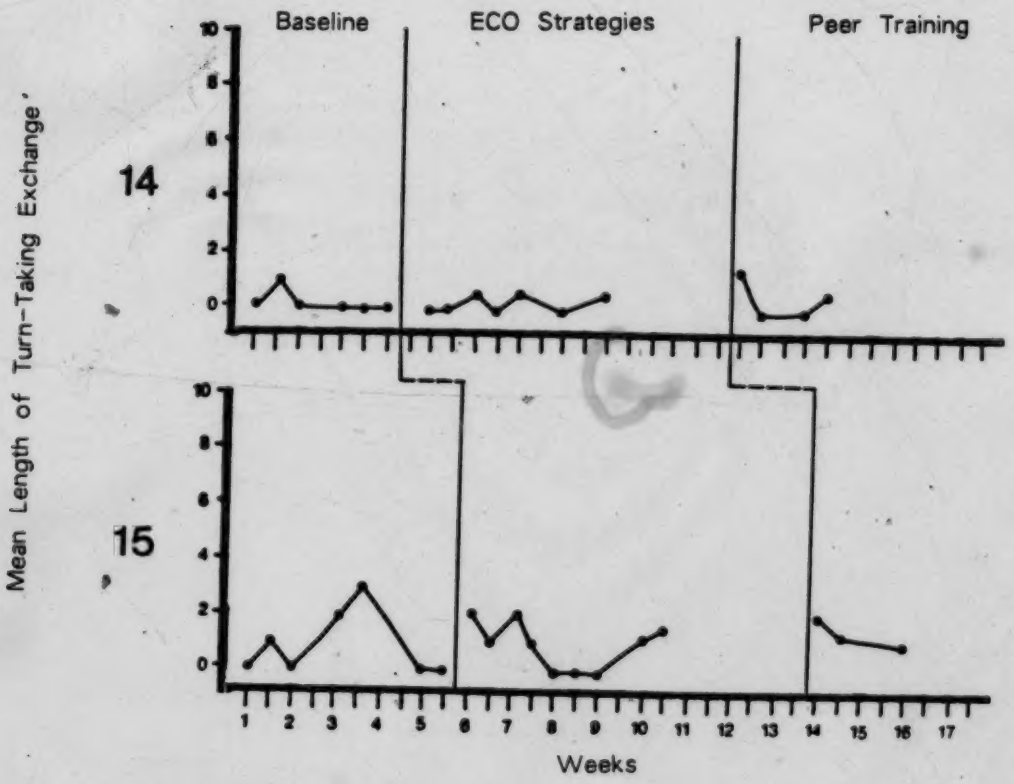


Figure 58

Length of Turntaking:

Peers and Handicapped Child

Rural Program 07



VI. Discussion

The following discussion will attempt to evaluate the specific effects of the two inservice modules. The differential results which occured across subjects will be more closely scrutinized, and possible explanations for these effects will be suggested. However, it should be stressed that the explanatory hypotheses presented are tentative, as the characteristics of this research design precludes the possibility of making definitive statements concerning the differential results which occurred across subjects. That is, given the heterogeneity of the subjects and settings which were present in this investigation, it was not possible to identify which variable or combination of variables were responsible for the observed differences (Hersen & Barlow, 1976). Therefore, this analysis will attempt to identify some of the potentially relevant variables which may have mediated the treatment effects, and as a result, suggest how the training procedures may be modified in order to best meet the needs of different students and their teachers.

A. Inservice Module #1: Ecological Teaching Strategies

In general, the training of staff in the use of ecological teaching strategies (MacDonald, 1982) resulted in a significant increase in the rate of occurrance of turntaking exchanges between the staff and the handicapped children (See Figures 3 through 9). Training staff to initiate and maintain these exchanges has been stressed by MacDonald and Gillette (1982), who state that turntaking may be the "single most powerful tool in training language in that it sets up the essential interaction without which little socially useful language will emerge" (p. 9). The importance of training staff in the use of specific techniques to initiate and maintain a turntaking relationship with their students is underscored by research which indicates that handicapped children are often deficient in the acquisition of the elemental components of conversational turntaking (Vietze, Abernathy, Ashe, & Faulstich, 1978).

In general, it would appear that skills acquired by the staff through the inservice training resulted in a significant increase in the rate of turntaking exchanges which occurred between staff and the handicapped child in the classroom. Although the degree of impact on the rate of occurance of this behavior varied, it was seen that for subjects 01, 02, 03, 04, 05, 06, 07, 08, 09, 11, 12 and 15, the implementation of the treatment

was reliably associated with an increase in the behavior at a level significantly above that demonstrated during the baseline phase. Additionally, instructional staff, when replying to a questionnaire concerning the strategies presented, consistently rated turntaking as one of the most useful skills presented to them at the workshops. Staff commented that "being aware of turntaking stops me from 'talking at' the students all the time" and that it "focuses my attention on allowing the child time to interact."

A closer analysis of the turntaking exchanges exhibited by this group of subjects indicated that typically the number of turns taken by both the handicapped child and the staff were closely matched (See Figures 17-23). This indicated that these turntaking exchanges were generally well balanced, with neither participant dominating the exchange. However, it was also noted that staff often demonstrated a slightly higher number of turns. This effect may have been a reflection of staff use of the ecological teaching strategies: i.e. the staff may have to use a signal and/or physical prompt following an initial interactive behavior in order to elicit a response from the child.

In addition, an analysis of the data over time indicated that where an increased rate of turntaking was observed, these increases were generally maintained across the treatment phase, and in some cases, an increasing upward trend was demonstrated (See Figures 3-9). This issue would appear to be particularly important, as it would appear axiomatic that inservice training should result in durable changes in the behavior patterns seen in the classroom (Kazden, 1980). It is possible that the use of verbal feedback coupled with social praise (i.e. Coissart et al, 1973) and the modeling of the target behaviors within the classroom setting (i.e. Watson & Uzzell, 1980) may have contributed to the maintenance of the newly acquired skills over time.

Unfortunately, although there was a moderate increase in the mean length of the turntaking exchanges associated with the implementation of the treatment, in general there was a considerable degree of variability in the data over time, and no trends were evident (See Figures 24-30). As a result, it is evident that the training procedures and/or follow-up visits should place more emphasis on the importance of extending the length of the turntaking exchanges. As pointed out by MacDonald (1982),

> A primary goal in training is to extend the Turntaking length (TTL) of conversations across appropriate social contact purposes. Just as MLU is a reflection of increasing linguistic competence, (Brown, 1973) TTL may well

> become an index of communicative competence (Sacks, et al, 1974; Schlegloff, 1973; Jefferson, 1972). (p. 22)

The failure to demonstrate an increase in the length of turntaking exchanges may be due, in part, to the inconsistent staff use of the ecological teaching strategies, signaling and prompting, seen for the majority of these subjects (See Figures 10-16). It is possible that the more consistent use of these strategies would facilitate staff attempts to maintain longer interactions with their students as a means of maximally facilitating language development (MacDonald & Gillette, 1982).

It was noted that two subjects, 13 and 14 demonstrated no response following the implementation of the treatment (See Figures 8 and 9). Although this lack of response can possibly be attributed to a failure of staff to generalize the trained strategies in the actual classroom settings, this argument is weakened by the fact that, in both cases, instructional staff had successfully developed and maintained a turntaking relationship with the second subject within the setting.

An analysis of subject characteristics reveals that both of the non-responsive subjects were functioning at a nonlinguistic mode of communication. In contrast, the majority of subjects for whom turntaking was demonstrated exhibited verbal behavior, using either single words or phrases as their dominant mode of communication. Therefore, it is possible that staff had greater difficulty matching the nonlinguistic mode of communication in order to establish a turntaking relationship. This conclusion is further supported by the data reported for the third subject (10) who also functioned at a nonlinguistic level (See Figure 7). While there was an abrupt change in the rate of turntaking behavior demonstrated after the implementation of the treatment, the effects rapidly diminished, and no further turntaking exchanges were observed.

Given the lack of success demonstrated with students functioning at a nonlinguistic level, it would appear that more emphasis should be placed on training staff to consider random perlocutionary behaviors as potential targets for training. As pointed out by MacDonald and Gillette (1982), a child need not "intend" to send a message in order for it to be interpretated as a communicative behavior. For example:

> ...a child may rattle her crib and her mother may take that behavior as meaning "I want out", even though careful observation would show that the child was just

> playing. This mother's interpretations are one big step in teaching the child that those behaviors can communicate. (MacDonald & Gillette, 1982, p. 28).

Unfortunately, the examples of nonlinguistic behaviors provided for the staff during the inservice training generally were those behaviors which are conventionally accepted as having a communicative meaning: i.e. shaking head "no" or pointing "I want it" (See Appendix A).

If staff fail to consider these prelocutionary behaviors as a target for training, they will miss the child's first step in developing communication, which arises out of random movements and play (Bates, 1976). It is important that these earlier actions be strengthened if the child is to develop the nonverbal communication system necessary for the development of speech and language. It appears that the staff should instructed more specifically on how to transform random behaviors into communicative acts, by showing the child that the behavior has a communicative effect (MacDonald & Gillette, 1982).

In addition, it was noted that, contrary to expectations, staff use of the imitation strategy was minimal (See Figures 10-16). Although some of the non-linguistic subjects engaged in turntaking despite the absence of the imitation, it is possible that this strategy may have been particularly useful for those staff working with the subjects who did not respond to treatment. Not only would imitation have assisted the staff in matching the communicative modes of the student, this strategy has also been suggested as being useful for initiating and maintaining turntaking exchanges. As pointed out by MacDonald and Gillette (1982):

> To naturally train the child to attend to others, adults may need to become "childlike" (not childish) and follow the child's lead. An easy way to get into the child's world is to imitate what he does; this lets him know that his behaviors are having communicative effects on others. (p. 82).

Finally, the lack of response exhibited by subjects 13 and 14 also indicates that, in some cases, staff have difficulty generalizing the newly acquired strategies across children who exhibit different patterns of communicative behaviors (See Figures 8 and 9). This issue would appear to be particularly important as staff will predictably encounter a number of students in future classrooms for whom implementation of the inservice strategies would be appropriate. Therefore, it is suggested that while inservice training should necessarily focus on the strategies which are particularly suited to the students

with whom staff are currently working, caution must be exercised so that staff are made aware of how these strategies can be used with students exhibiting different patterns of communicative behavior.

Summary

In general, it would appear that this inservice module was an effective means of training staff in the use of the ecological teaching strategies. In most cases, it appeared that the newly acquired skills were successfully demonstrated to the classroom, as evidenced by the observed change in staff behaviors. Additionally, the implementation of the strategies was associated with a significant change in child behaviors for a majority of the subjects under investigation.

However, minimal treatment effect which was seen for subject 10, 11, 13 and 14 indicates that more attention should be paid to the specific teacher needs as they relate to the unique characteristics demonstrated by target children. In particular, it would appear that staff have difficulty initiating and maintaining turntaking interactions with children functioning at a nonlinguistic level of communication. However, rather than delimiting the range of material presented to such staff members during training, which may restrict the staff's ability to generalize the strategies across students exhibiting different levels of functioning, it is recommended that more guidance be provided during the follow-up visits to facilitate generalization.

B. Inservice Module #2: Use of Peers to Facilitate Social Interactions.

As noted in the previous chapter, there was a general lack of consistency in the behavior patterns demonstrated in response to the treatment across subjects. The following discussion will consider each of the research questions in the order in which they were presented in the previous chapter, and tentative hypotheses concerning the differential treatment effects will be presented.

In general, visual analysis of the observational data reveals that the majority of the students under study demonstrated a moderate increase in the rate of social initiations following the implementation of the treatment. These results were consistent with those obtained by Strain and his colleagues (Strain & Kerr, 1981), who have demonstrated that

peer initiation training is often associated with increased levels of social initiations exhibited by the handicapped child. Additionally, many staff members, replying to a questionnaire often noted that the handicapped children appeared to be "more eager to interact" and often "approached other children independently, for the first time."

However, it was noted that subject 10 demonstrated initiation behavior during only one of the observation sessions over the entire length of the investigation (See Figure 35). As well, subjects 05, 08 and 09 exhibited a relatively stable level of behavior across time, with no significant change following the implementation of the treatment (See Figures 32 and 34).

The lack of treatment effect demonstrated for subject 10 could possibly be mediated of the following factors. First, this subject was totally non-mobile and functioned at a nonlinguistic level of communication, as a result of cerebral palsy. It was not possible for this subject to approach his peers independently, or initiate interactions through verbal means. Further, an analysis of the rate of initiations and the total number of interactive behaviors directed towards this subject by the nonhandicapped peers indicates that a very minimal level of contact was demonstrated across all phases of the investigation. Therefore, the subject did not appear to have the opportunity to initiate social interactions with the nonhandicapped peers within the classroom.

These results obtained for this subject are also generally consistent with those obtained by Strain et al, (1977). It was found that children who exhibited severe language delays demonstrated no increase in the level of social initiations as a result of peer social initiation training. However, it should be noted that verbal deficiencies were not consistently associated with a depressed level of social initiations. Subjects 11 and 13, both of whom were functioning at a pre-verbal level of communication, demonstrated a moderate increase in the rate of initiations during the treatment phases (See Figures 35 and 36). It would appear that these subjects were initiating social interactions through the use of motor-gestural or vocal communicative behaviors.

The rate of social initiations directed towards the subjects typically increased following the implementation of the peer-mediated treatment. However there was considerable overlap in the measures across phases for several subjects (01, 04, 06, 11, 12, 14, 15) which makes it difficult to clearly establish the presence of a treatment effect

(See Figure 31, 32, 35, 36, & 37). It should be noted that typically, the rate of initiations stabilized following the implementation of the peer-mediated treatment. Therefore, while the treatment did not produce a significant change in the level of behavior over the baseline phase, it was often associated with a more stable rate of behaviors. This would indicate that the subjects were receiving social initiations from their peers on a more consistent basis during the treatment phase.

As well, it should be noted that the lack of a pronounced increasing trend in the rate of social initiations emitted by the handicapped peers during the treatment phase is generally consistent with the results obtained by Hendrickson et al, (1982). This study found that as the amount of social interaction between the nonhandicapped peers and handicapped children increased over the course of the study, the actual level of social initiations did not increase, and in some cases demonstrated a decreasing trend. However, these authors concluded that the use of the frequency measure did not accurately reflect the treatment effects. That is, as the children engaged social interactions of increasing duration, the necessity for initiation behaviors is decreased. Therefore, although the rate of initiation behaviors did not show an upward trend over time, the treatment was observed to have a positive impact on the social behavior of the subjects (Hendrickson et al., 1982).

Therefore, it would appear that an analysis of the total number of interactive behaviors exhibited by the subjects and their nonhandicapped peers may provide a more accurate portrayal of the effects of the peer mediated treatment. In general, visual analysis of the observational data indicates that the peers interacting with subjects 03, 06, 07, 08, and 15 demonstrated an increased level of occurance of social behavior following the introduction of the treatment, and in most cases this increase was maintained at a stable rate or demonstrated an increasing upward trend during the treatment phase (See Figures 38, 39, 40, 41, and 44). Therefore, it would appear that for these subjects, the peer mediated treatment did facilitate the increased social interaction between the handicapped children and their nonhandicapped peers in the classroom setting.

Peers interacting with subjects 01, 02, 05, 09, 11, 12, 13 and 14 typically demonstrated considerable variability in behavior across phases, and a significant degree of overlap was seen between the baseline and treatment phases (See Figures 38, 39, 40,

41, 42, 43, and 44). As a result, it is not possible to make any definitive conclusions concerning the treatment effects. It should be noted that subjects enrolled in Urban Centre 01 (01, 02) only participated in the joint task activities and social reinforcement components of the inservice module, as other classroom programming demands precluded the possibility of training peers to socially initiate. It would therefore appear to be possible that for some children a significant degree of increase in social interaction behaviors can be attributed to the social initiation training component of the training package. However, this conclusion is tentative, as the third subject in the program (03) did demonstrate a significant increase in the level of social behavior.

The differential treatment effects which were demonstrated across subjects in this study indicates that there is a need for a more fine grained analysis of the subject characteristics prior to the selection of the appropriate treatment procedures. As pointed out by Gresham (1981) it may be necessary to first assess the type of social skill difficulty exhibited by the target child, and then remediate through the use of the appropriate strategy.

For example, Gresham (1981) has suggested that social skill difficulties may arise as a result of either a) skill deficits, b) performance deficits or c) self-control deficits. It is further suggested that the training techniques used should vary as a function of the observed deficit. Skill deficits can be remediated through the use of modeling or coaching techniques, performance deficits treated through the manipulation of antecedent and consequent events, and self-control deficits can be remediated by using cognitive behavior modification techniques i.e. verbal mediation (Gresham, 1981).

The final component of the inservice training, use of contingent social praise, was evaluated through the use of a self-recording procedure. As previously outlined, staff within a number of centers found that the use of a paper and pencil recording procedure was simply not feasible within the kindergarten setting. These staff members chose not to use this strategy, as they found it to be very inconvenient, and disruptive of the normal class procedures.

Staff members who agreed to continue self-monitoring generally reported that the results indicated did not truly reflect the rate of social reinforcement for social interaction which was demonstrated in the classroom. It was typically seen that the numerous other

demands placed on the staff within the classroom setting often prevented the immediate recording of the data. Staff often reported that they tried to "remember" incidences of social reinforcement, so that the rate of behavior could be later recorded. However, it is clear that this procedure could not possibly result in reliable measures. Further, it should be noted that no procedure (i.e. use of independent observers) was used in order to evaluate the reliability and accuracy of the self-recording procedures. As a result, the data which was presented must be cautiously interpreted.

Given that the use of pencil and paper self-recording procedures appear to be inappropriate for this population, alternate methods of obtaining an accurate count of staff behaviors must be investigated, with an eye towards facilitating the ease of use and the accessibility of the selected technique. One example would include the use of small wrist counters (Lindsley, 1968) which have been demonstrated to be a relatively economical, convenient and unobtrusive measure of treatment effects. Additionally such counters produce the cumulative frequency of the targeted behavior, which facilitates the charting of the behavior across time (Thoreson & Mahoney, 1974). As well, it has been demonstrated that the accuracy of self-recording can be enhanced through the use of verbal reinforcement (Lipinski, Black, Nelson & Ciminero, 1975).

The final two research questions posed in this investigation were not directly related to the objectives of the inservice, but rather sought to determine the degree of mode-matched turntaking behavior which occurred between the handicapped child and his/her nonhandicapped peers, as well as investigating the length of the exchanges which were obtained.

In general, it was seen that approximately half of the subjects demonstrated an increased level of turntaking exchanges following the implementation of the treatment (See Figures 45-51). These results were consistent with those obtained by Guralnick and Paul-Brown (1977), who have shown that nonhandicapped four year olds demonstrate significant adjustments in their speech as a function of the developmental level of the receiving partner.

However, as previously demonstrated with the instructional staff, the analysis of the subject characteristics of those not exhibiting turntaking behaviors typically reveals that these subjects (10, 11, and 13) were functioning at a prelinguistic level of communication.

Therefore, while it would appear that subjects who exhibit some level of verbal behavior have a higher probability of engaging in social interactions with peers who will adjust their mode of communication to match that of the handicapped child. This phenomenon occuring within the social interaction should result in the maximal facilitation of communicative competence (MacDonald, 1982). On the other hand, handicapped children functioning at a pre-linguistic level may be receiving communicative input which he/she is unable to understand and/or respond to (MacDonald & Gillette, 1982).

Summary

The analysis of the treatment effects associated with implementation of the peer-mediated strategies reveals a considerable lack of consistency across subjects. While approximately half of the subjects demonstrate very positive reponses to the treatment variables, little or no reliable treatment effect was demonstrated for the remaining subjects. Although the heterogeneity of the subjects and settings preclude the possibility of making any definitive conclusions concerning the differential treatment effects, some possible suggestions concerning relevant mediating variables have been presented. However, it is clear that additional research is needed in order to evaluate the importance of these variables.

C. Conclusion:

It is clear that the placement of handicapped children into regular preschool settings has become an increasingly popular educational alternative in the last decade. However, although little substantive empirical evidence is currently available concerning the efficacy of integrated programs, it has become increasingly evident that the mere physical placement of a handicapped child in a regular program is a very complex process. In fact, evidence exists which suggests that, in the absence of systematic planning and preparation, the presence of a handicapped child in a regular program can result in effects which are entirely counterproductive to the goals of integration.

As a result, researchers paid increasing attention to delineating specific factors which appear to facilitate the effective integration of a handicapped child into a regular preschool program (i.e. Guralnick, 1981, Kysela & Barros, 1983). There appears to be a

general consensus that the skills and competencies of the instructional staff are a critical factor in successful integrated programs. Staff must have the ability to both meet the unique educational needs of the child as well as facilitate maximal temporal, social and instructional integration.

Unfortunately, it has been demonstrated that the majority of the teachers currently working in integrated settings do not feel that they have the skills necessary to meet the unique needs of their students (Kysela & Barros, 1983). As a result, the provision of some type of systematic training program for those currently working in the field would appear to be critically important. This study has evaluated the effects of two inservice modules which were developed in an attempt to train staff in the necessary competencies to 1) facilitate the development of handicapped child's communicative abilities, and 2) the use of peers as therapeutic agents to facilitate social interaction between the handicapped and their nonhandicapped peers.

The analysis of the naturalistic observational data gathered over the seventeen week period indicated that generally, the training of staff in the use of the ecological teaching strategies (MacDonald, 1982) resulted in significant changes in the staff and child behavior as well as in the interaction and conversations occurring between them. However, it was noted that some of the subjects under investigation demonstrated minimal levels of response to the implementation of the strategies. While the characteristics of the research design precludes the possibility of making any definitive statements concerning variables which may have mediated the treatment effects, some tentative suggestions concerning potentially relevant variables were presented.

The analysis of the treatment effects demonstrated following the introduction of the peer mediated strategies which were presented in the second inservice module indicated that there was a significant degree of variability across subjects. While approximately half of the subjects demonstrated very positive effects as a result of the treatment, the remaining subjects did not show a reliable change in behavior following the introduction of the peer mediated strategies. Again the attempt was made to identify potentially relevant variables which may have mediated the treatment effects, but it is clear that continued research is needed in order to facilitate the development of a social skill training package which would have more consistent effects across subjects.

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APPENDIX A

INSERVICE MODULE I

Ecological Teaching Strategies

Adapted from the work of
James D. MacDonald
Yvonne Gillette

A Conversational Approach to

Clinical Management of Language Delay

Problems and Solutions

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Lecture Notes:

Common Problems With Interactions and Conversations: (MacDonald & Gillette, 1982, p 11-20)

Handicapped children across several diagnoses show common problems in their early interaction and conversation skills. These problems often prevent speech and language from developing and need to be addressed in early language intervention. First, we will discuss several common problems that are seen with handicapped children. Following this, we will discuss some strategies to help you interact more effectively with the child, to make his time with others natural language lessons.

Ignoring Others:

Basic to all communication development is the skill of recognising others and then initiating or responding to them. One primary recurring problem expressed by parents and teachers of language delayed chiildren is that they "won't respond." Unless a child respond to others, most people will be discouraged from making contact with him. James MacDonald believes that the child starts a developmentally vicious cycle in which his ignoring drives people further away, thus giving the child less contact and more isolation. In order for him to develop language, a child must want to contact others.

Survival Contacts Only

When we survey the reasons that a handicapped child and the adults in his environment regularily contact each other, it is often not surprising that the child communicates so poorly. Research indicates that handicapped children contact others for a narrow band of reasons, usually limited to fulfilling basic needs (for example, getting something out of reach) or crisis situations (for example, protesting a demand). Parents, on the other hand, report that they contacts the child primarily for caretaking, nurturing, and disciplining reasons. If you examine the ways in which you contact the child, they are probably also limited to a very narrow band: for example, giving specific instructions, teaching skills, caretaking or disciplining.

The child's sounds and words of the future will be determined by the range and depth of different kinds of contact that occur regularly. These social contacts should be looked upon as the necessary "lessons" the child needs for developing speech and language. Each contact is a language lesson in that it will show the child how, what and why to communicate about his world at the best moment for learning–now.

One Sided Activities:

Not only do we see fewer social contacts that are necessary for languge development with handicapped children, those contacts that do occur are frequently one–sided. One person, child or adult, is usually running the show, that is, doing most of the communicating, most of the wanting, or most of the getting. Frequently, the picture is either that the child is being "talked at" or "done for" without participating actively, or the child is directing and demanding with the adult following the child unconditionally. In the first case, the adult plays the "dofer" role; in the second, the adult is the "conditional follower." In neither situation will the child have the "give and take" practice that is necessary to gradually shape his communications into adult form. Parents and teachers appear to be trained by the child to take care of him or follow him around.

Didactic (Teaching) Interaction:

A common problem seen with parents and teachers is that they communicate with the child as though they were intentionally trying to teach. "What's that?" "Point to your nose." "Show the man what you can say." These are common examples of interactions that show that the adult's sincere concern for better language and communication but none of the natural and enjoyable "give and take" relationship that is necessary for either to develop.

Because the handicapped children we are concerned with have, primarily, problems in interaction and conversation skills, we must not assume, as most didactic approaches to language teaching do, that the child has the conversational skills to use, practice, and generalize his language knowledge. What will it matter if a child can name his body parts, colors, shapes and sizes if he does not spontaneously have conversations where he can use these words?

These types of interactions are often very brief and infrequent. MacDonald calls these contacts "deadend" because the encounter usually lasts one turn. While these are occasionally necessary and appropriate, if they are the rule rather than the exception, the child will miss many natural language learning sessions.

For example:

Adult: "where are you going?"

Child: "Out"

OR

Child: "Cries for bottle"

Adult: "Here"

OR

Adult: "What's that?"

Child: "Dog"

Rhetorical Attitude:

Another common observation makes one think that it is little wonder that handicapped children do not communicate more. We regularly hear adults say to such children things like: "What are you doing? Going outside? See you later." or "You don't need to do that. You know that I don't like it." These situations make the job of communicating easy for the child: he doesn't have to. The adult was talking at the child, not with him. The adult gives neither time for the child to respond nor cues to encourage him.

If you do not expect the child to communicate, he won't.

TURN-TAKING

WHAT IS IT?

"Turn-taking is one skill that is basic to interactions and conversations.

Turn-taking involved one person acting or communicating then stopping and waiting for the other person to act or communicate." (MacDonald & Gillette, 1982, p. 8)

REMEMBER: TURN BALANCE

MY TURN - YOUR TURN - MY TURN - YOUR TURN - MY TURN

ESTABLISHING TURN-TAKING

1. Share the choice of activities: sometimes follow his lead, other times lead him. In learning how to interact with others, the child will have to do as others do as well as get others to join him at his activities.

   Watch to see that you are sharing choice of activities with the child, so he can learn this lesson now. Don't be a follower: don't be a dictator. Be a real partner in what you do with the child.

2. Imitate the child. Imitation can be used as a way to start an interaction or conversation. It is especially effective with a child who is reluctant to interact.

   To naturally train the child to attend to others, adults may need to become "child-like" (not childish) and follow the child's lead. An easy way to get into the child's world is to imitate what he does. This lets him know that his behaviors can have a communicative effect on others.

   Often it is difficult to decide just what the child knows. When you imitate the child, you are likely to get his attention since you are then really in his action or knowledge world.

   Imitation will help you slow down to the child's level. You will know that you are doing the kinds of things that he can do at the rate he can do them.

   Adults want children to do what they do, to say the words they say. One way to teach the child to "do as I do" is to do what he does.

   Examples: Imitate the things you'd like to see the child do more often. Imitate the child, and then wait to see what he does before you act again.

   1. Touching: if the child comes up and taps you, tap back, then wait for him to make another movement before you do anything else.

   2. Faces: if the child squints or frowns, imitate this face briefly, then wait for a new face.

3. Gestures: imitate the child's gestures. If he points up, do it yourself. Wait for him to make another movement.

4. Actions: if the child is stacking blocks, you take a turn stacking, and then wait for him to do it again.

5. Laughter: if the child laughs, let him finish and then laugh briefly.

6. Sounds: imitate the sounds he makes. If the child says "oooo," say "oooo," and then wait.

7. Words: if the child says a word or makes a sign, respond immediately so that he knows that he has an effect on you. For example:

   Child: "Hi"
   Adult: "Hi"

   Child: "Juice"
   Adult: "Juice" and gets juice for the child.

WAYS TO COMMUNICATE WITH THE CHILD

The important point to remember with handicapped children is that any behaviors can communicate, and that every child is ready to communicate in some way. The task at hand is to first determine the way in which the child is currently communicating. Then get into the child's world and communicate in the way he does. The major task is to get the child to engage in turn-taking: until that behavior is well established, do not worry about improving communicative skills.

COMMON MODES OF COMMUNICATION

Nonlinguistic (with sounds or words):
- Gesture: pointing at an object "I want it"
- Facial expressions: smile "I like you"
- Head Movements: shaking head "No"
- Body Movements: jumping up and down "I'm angry"
- Eye Movements: closing eyes "Go away"
- Miming

Vocal (with sounds):
- Babbling: repetition of a variety of sounds "I'm happy"
- Jargon: use of continuous sounds with normal "speech-like" intonation: "Pay attention to me"
- Yelling: "I'm angry"
- Crying: "I'm sad"

Words:
- Sounds interpreted as words: "ba" for "ball"
- Signs
- Action words: "walk" "go" "push" "eat" "pull"
- Agent: "mom" "baby" "boy" "Teacher"
- Objects: "bus" "ball" "eye" "apple"
- Location: "up" "down" "in" "on"
- Experience: "sad" "want" "happy"

Phrases:
- Combines above word categories: "Mom walk" "Freddy go eat in chair" "Ball go up" "Want apple"

HOW DOES THE CHILD COMMUNICATE?

Child's Name: _____

Dominant Communication Mode: _____

Examples: _____

_____

_____

Child's Name: _____

Dominant Communication Mode: _____

Examples: _____

_____

_____

Child's Name: _____

Dominant Communication Mode: _____

Examples: _____

_____

_____

Child's Name: _____

Dominant Communication Mode: _____

Examples: _____

_____

_____

MATCHING MODES – EXAMPLES

ASSESS AND WORK WITH THE CHILD'S CURRENT MODE OF COMMUNICATION

BLOCKS

LIKE THIS: Adult and child take turns building a tower.

NOT THIS: Child plays with blocks while adult talks about what he is doing.

DRAWING

LIKE THIS: Adult and child take turns drawing lines, circles, scribbles on the same sheet of paper.

NOT THIS: Adult watches the child draw, or they both draw side–by–side.

MUSIC

LIKE THIS: Adult and child take turns plucking guitar strings or sounding on a xylophone.

NOT THIS: Adult or child plays instrument while other claps or watches.

BODY MOVEMENTS

LIKE THIS: Adult does an action (touches head), the child does an action (touches head).

NOT THIS Adult grabs the child's hand and twirls him around.

SOUND PLAY

LIKE THIS Adult makes a sound, "weee", child makes a sound "weee".

NOT THIS: Adult hums to the child, he laughs when you are finished.

SOUND PLAY WITH A BALL

LIKE THIS: Adult: "Ba" (Throws ball into a box, or at a target).
Child: "Ba" (Throws ball into a box, or at a target).

NOT THIS: Adult: "Throw the ball over here, Freddy."

Child: Throws the ball.

SOUND PLAY WITH TOY CARS

LIKE THIS: Adult: "Brrrooo" (Pushes car around, then pushes it to child).

Child: "Brrrooo" (Pushes car around, then pushes it back).

NOT THIS: Adult and child each have a car they push around.

WORDS

LIKE THIS: Adult: "Puzzle." (puts puzzle piece in, hands one to child).

Child: "Puzzle" (puts puzzle piece in).

Adult: "In" (puts puzzle piece in).

Child: "In" (puts puzzle piece in).

NOT THIS: Adult: "Look at this. What is this, Freddy?" (holds up puzzle).

Child: looks

Adult: "What is this? Say puzzle. Puzzle." (holds up puzzle).

Child: loses interest, turns away.

Adult: brings the child back. "Say puzzle. Puzzle."

Child: runs away

PHRASES

LIKE THIS: Child: takes rope from shelf.

Adult: "Rope. Swing rope."

Child: swings rope

Adult: "What doing?"

child: "Swing rope"

Adult: "Swing rope. My turn?"

Child: "Swing it"

NOT THIS:

Child: takes rope from shelf

Adult: "What are you going to do with that? Are you going to swing it. Here, let me show you."

Child: looks at rope. Reaches for it.

Adult: "Here, let me show you the right way. See, take it like this. Watch it twirl."

Child: reaches for rope

Adult: "Do you think you can do that?"

STRUCTURE FOR GIVE-AND-TAKE

How can interactions and conversations with the child become good natural teaching lessons? A major recommendation is to have frequent contact in which give-and-take is the rule. No one person should do all the acting, talking, deciding, or following.

REMEMBER:

1. ANYTHING: Any activity can be made into turn-taking.

2. ON THE RUN: Don't limit turn-taking to play—make all casual contact into turn-taking.

3. EXPECT COMMUNICATION: Remember that your expectations have a significant impact on the child's behavior. If you behave as though you expect the child not to communicate, you are teaching him it is not necessary to make the effort.

   Be consistent. Expect communication in every situation.

4. MATCH COMMUNICATION MODES: Turn-taking means that both you and the child are communicating at the same level.

   DO NOT DO THIS:

   Child: Acts
   Adult: Talks
   Child: Acts
   Adult: Talks

   Child: Single word
   Adult: Sentence

MAINTAINING TURN-TAKING

Keep the child for more and more turns. If you do he will learn more from you and become motivated to stay interacting with people.

STRATEGIES:

1. WAIT: Do you feel like you are doing all of the talking/acting? If may be that you are not giving the child a chance to communicate.

   Send a message with body language, sounds or words. Then wait for the child to respond.

   Many adults report that waiting for a child ro perform is very difficult to do. But once you give in and fail to wait, we immediately see two things; the child has missed an important language practice turn, and we have failed to find out what the child could do in that turn. As well, if you do not wait, you are teaching the child to be passive, and that he does not have to communicate. Resist the social pressure to fill the "silence gap": wait.

   Remember that he has not had as much practice communicating as you, so it may take time. TRY COUNTING TO 5.

2. WAIT AND SIGNAL: Your child may not realize that he is supposed to be acting or communicating when he is with other people. Waiting with a signal may help to motivate your child to be more active and communicative.

   Here are some possible signals that you can use while you wait for your child to take a turn:

   POINT to the activity where the child should be taking turns or point to the child when it is his turn.

   MOUTH – put your mouth in the shape of the word you expect him to say.

   VOCAL PROMPTS: "Your turn"

REMEMBER TO COUNT TO 5 WHILE YOU WAIT WITH A SIGNAL.

3. PHYSICALLY PROMPT TURNS WHEN NECESSARY:

a. If your child will not take a turn:

When you have waited to the count of 5, and used a signal and the child does not take a turn, reach over and help him do it.

For Example: put your hand over his to put a puzzle piece in, stack a block, turn a page or draw a line.

If you are frustrated, try not to let the child know it. Try not to talk as you help him, and do not scold the child. Just help him take a turn, then take yours and wait again. Soon the child is likely to take his turn without help—but only if you keep expecting him to take a turn and leave the space for him to do it by waiting.

b. If your child will not give you a turn:

When the child wants to take all of the turns, it might be necessary to physically prompt him to wait. It is as important for the child to learn to wait as it is for him to take a turn.

Again, the same principles outlined above will apply. Do not let the child know you are frustrated or irritated with his behavior. Just remove the child's hands from the activity quietly so that you can get a turn in yourself. Eventually the child will learn to wait for others to get into his activities.

4. MODEL ACITONS AND MESSAGES: Remember that as he learns to interact with others, the child will have to do as others do as well as get others to join him at his activites.

If the child is not acting or sending messages, you may have to model the behavior for him. Modeling means showing the child an activity, sound, word or phrase which you know he will be able to perform himself.

APPENDIX B

INSERVICE MODULE II

The Utilization of Non-Handicapped Peers to Improve the Social Skills of the Special Needs Child

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Joint Task Activities

The Joint Task Activity is based on the procedures developed by Hops and his colleagues (1978) in the PEERS program for use with elementary age school children. While we have modified the content, or type of activities recommended to better suit the developmental level of your students, the basic objective of the activity, and the procedures used to implement them remain unchanged.

The main objective of this activity is to provide opportunities for the special needs child to interact with his/her peers on a daily basis over an extended period of time. These joint task opportunities are a shared activity between the child and a selected peer, and are characterized by turn-taking behavior between the two partners.

Selecting Joint Task Activities:

Many of the existing activities which are regularily conducted in your classroom/centre can be utilized to encourage turn-taking within the joint task routines. As well, additional suggestions for activities have been provided. You can select any activity which you believe to be appropriate as long as they meet the following requirements:

5. THEY MUST PROVIDE THE OPPORTUNITY FOR TURN-TAKING.

6. THEY MUST BE APPROPRIATE FOR THE CURRENT MODE OF COMMUNICATION USED BY THE SPECIAL NEEDS CHILD.

The three different levels of joint activity routines which are presented have been structured so to encourage interaction and communication which will best match the mode of communication currently used by the special needs child:

1. NON-LINGUISTIC: These activities involve turn-taking but do not require vocal and/or verbal input from the special needs child who is currently functioning with a non-linguistic mode of communication.

2. VOCAL: Again, these activities rquire turn-taking, and have also been designed to

encourage communication between the special needs child and his/her peer at a vocal level.

3. WORD/PHRASE: These activities have been designed to encourage verbal interaction between the two partners.

PREPARING JOINT TASK ACTIVITIES

After determining the level or mode of activity which is most appropriate for the special needs child, the following procedure can be followed:

1. Select a number of joint task activities which you feel will best match the interest and preferences of the special needs child and his/her peers.

2. Gather and/or prepare the necessary materials required for the activities selected. To reduce the need for daily planning, you may wish to prepare enough joint task activities for a week in advance. It is also advisable to have a few alternate activities readily available so that you can quickly change activities if you find the children are not performing as expected.

3. Schedule at least one 10 minute time period for the joint task activity each day. Select the time where you feel such activities would occur most naturally.

4. It is not necessary to devise a different joint task activity for every day of the program. However, when repeating activities, it may be advantageous to leave a gap of several days, in order to minimize the chances that the special needs child will become bored with the task. You can use your own judgement to guage the children's interest in the task.

5. Select a different peer to participate in each joint task activity. Use the chart to ensure that every child is allowed to participate at some time.

IMPLEMENTING JOINT TASK ACTIVITIES - DAILY ROUTINE:

1. Ensure appropriate materials are available.

2. At the beginning of the scheduled time period, direct the special needs child and the peer to the location where the task is to be done.

3. Introduce the joint task activity to the children, explaining how to carry out the activity if necessary. Clearly state your expectations for: a) turn-taking; and b) communication in the appropriate mode.

4. Instruct children to begin activity, and supervise them briefly to make sure they are participating as expected.

5. Leave the children to carry out activity independently. Check back every TWO minutes to gauge performance and deliver reinforcement.

   In most cases, the social reinforcement given should be very brief so as not to interrupt the ongoing social interaction. Hops et al (1978) suggest the following "Quickie Praise":

   "Good talking!" "Good going!" "Terrific"

   "Keep it up!" "Great!" "That's it!"

   As well, more lengthy descriptive phrases can be used to clearly specify to the child exactly what he is being praised for. Reserve use of descriptive phrases until the social interaction has come to a natural pause.

   For example: (Hops et al, 1978)

   "You are taking turns very nicely!"

   "Good for you! You waited to take your turn!"

   "You are working very nicely together!"

   "What a good question to ask!"

   "It's nice to see you working together!"

"You are listening very well!"

"I like the way you answered that question!"

"I like the way you say the names of the pictures!"

"You are playing this game very nicely!"

6. After 10 minutes, socially reinforce the children with descriptive praise.

7. Record the activity used, with a brief statement about its effectiveness.

8. Record the nonhandicapped peer who participated in the activity.

SUGGESTED JOINT TASK ACTIVITIES

(NL = NONLINGUISTIC V = VOCAL WP = WORD/PHRASE)

PAPER CHAINS: each child is given strips of paper (different color for each). Construct a chain using alternate colors (NL, V, WP)

BEADS: each child is given beads (different color for each). Construct a chain using alternate colors. (NL, V, WP)

JOINT PUZZLES: children take turns completing a puzzle (NL, V, WP)

BUBBLES: each child takes turn blowing bubbles (NL, V, WP)

DRAWING MAN/HOUSE/ANIMAL: given an outline of the shape, the children take turns completing the figure. (NL, V, WP)

BLOCKS: children take turns building a structure.

SOUNDS: given a stack of pictures of animals, the children take turns selecting a picture and making the sound the animal does. (V, WP)

NAMING: given a stack of pictures, the children take turns selecting a picture and labeling it. (WP)

TOY TELEPHONES: (WP)

PUPPETS: (WP)

BALL/BEAN BAG TOSS: children take turns throwing ball or bean bag at target (NL, V, WP)

SIMON SAYS: children take turns imitating the actions of the other (NL, V, WP)

TRAINING PEERS IN SOCIAL INITIATION PROCEDURES

This component of the training package is adapted from the procedures developed by Strain and his colleagues (1981) as well as the work of Hops et al (1978). The objective is to use direct teaching strategies to instruct the non-handicapped peers to initiate and maintain social interactions with the special needs child. The peer is taught to use at least three "strategies" to accomplish this goal:

1. BEGIN: initiate an interaction.

2. ANSWER: respond to an initiation.

3. TAKING TURNS: maintaining an interaction.

4. HELPING: assisting special needs child to participate in the interaction (optional).

The precise directions for conducting these training sessions are provided in "lesson plan" format (see following).

Peer training takes place over the first three days of the program. Each session will require approximately 10-15 minutes to complete. While it is not necessary to conduct the tutoring sessions in a separate room, the area selected should allow you to talk and role-play without interruptions. As well, care should be taken to select a time when these sessions will not be disruptive of the ongoing activities in the classroom/centre, or draw undue attention to those being trained.

SELECTING PEER TRAINERS:

The first task in this procedure is to select the peer trainer(s) who will work consistently with each special needs child. This activity differs from the Joint Task Activities in which a different peer is selected each day. In this case, one peer (and possibly one alternate) is selected to be trained in the social initiation strategies and to participate in the daily play sessions with the special needs child.

The following guidelines can be used in the selection of the peer trainer(s):

1. In most cases, the peer trainer should be the same gender as the special needs child. However, in some cases, you may feel that a child who is of the opposite sex may be the most effective trainer. In that case, feel free to select that peer.

2. While it is possible to train special needs children to act as peer trainers, in most cases the children selected have been described as "normally developing".

3. The child selected should also demonstrate the following characteristics:

   - relatively high rate of positive social initiations during free play.
   - able to follow adult directions reliably.
   - attend school/centre regularily, to ensure uninterrupted training.

If possible, it may be advantageous to designate two peer trainers to work with each special needs child. This allows you to use the two interchangeably, and raises the probability that a peer trainer is always available for the daily play sessions. As well, by using more than one trainer, it is possible that across-child generalization will be facilitated.

Please note that it is possible to use the same peer trainer with two or more special needs children if you feel they can work effectively with each. It is NOT necessary to train two different peers for each special needs child in your classroom/centre.

SELECTION OF MATERIALS:

Research has demonstrated that certain toys and activities are more effective than others for promoting cooperative play, and therefore are often given to the peer trainers as tools to use when playing with the special needs child. For example, the following are often used in programs of this type: toy telephones, blocks, trucks and cars, doll houses and dolls, puppets, balls, "Nerf" toys, and "Frisbees". By observing the children at play in your classroom/centre, you should be able to supplement this list with other toys/activities

which are currently available to you and function to promote cooperative play between children. For example, painting or working with clay are generally activities done alone, whereas table games, "playing house", or competitive games require cooperative play. Finally, in compiling your list of appropriate toys/activities, you should consider the level of play skills exhibited by the special needs child, as well as any particular interests or preferences they have demonstrated.

TRAINING PROCEDURES:

The training sessions should be conducted during the first three days of the program, and should take 10 to 15 minutes to complete. Prior to conducting the sessions:

1. Familiarize yourself with the procedures before beginning the session.

2. Gather and/or prepare a variety of materials which you believe will be appropriate for the peer trainer to use with the special needs child. These will be used in the role-playing sections of the training.

TRAINING PROCEDURES

INTRODUCTION:

Give a simple explanation for conducting the lessons: "You have been picked to be my special helper today. I want you to help me teach some of the other children how to play together. I know some secrets about playing that I'd like to share with you, and then we can practice them and see how they work. Okay?"

1. BEGIN:

"The first secret for helping other children to learn how to play is to BEGIN the game. What is the first thing we do?"

(Wait for the children to answer. If they are right, praise them, if not, tell them the answer and then ask them again. Repeat until correct response is given.)

"Right! We are going to find out how to BEGIN a game. Let's try it. First you watch me BEGIN to play and then you try it."

(Model the appropriate verbal behavior: "Come play!" "Let's play ball!"—whatever is appropriate for the activities you have selected.)

"Now you try to BEGIN to play. Let's pretend I am (name of child)."

Child practices desired behavior while the teacher assumes behavior patterns similar to those of special needs child. Repeat 2 times: praise correct responses. If necessary, correct by modeling desired behavior again.)

"That was very good! Remember that many times children will not want to play at first, but you need to keep trying to BEGIN to play. Let's try again."

(Have peer try BEGIN responses again, but ignore every other attempt. Repeat 6 times.)

"That was very good! You kept trying to BEGIN!"

2. BEGIN WITH MATERIALS:

"Sometimes we can BEGIN to play by giving the person something to play with us."

(Model handing toy to child while asking child to play.)

"Now you try to BEGIN to play. Let's pretend I'm (name of child).

(Repeat 2 times: praise correct responses. If necessary, correct by modeling desired behavior again.)

"Remember that many times children will not want to play at first, but you need to keep trying to BEGIN to play."

(Have child practice BEGIN responses again 4–6 times, but ignore every other attempt.)

"That was very good! You kept trying to BEGIN!"

"So let's remember that the first secret for helping others to learn how to play is to BEGIN. What is the first thing we do?"

(Wait for the children to answer. If they are right, praise them. If not, tell them the answer and then ask then again. Repeat until correct.)

3. ANSWER:

"We have learned to BEGIN to play. Now we are going to talk about what to do when someone else tries to BEGIN to play. When someone wants to BEGIN to play, we ANSWER them. What do we do when someone wants to BEGIN?"

(Wait for the children to answer. If they are right, praise them. If not, tell them the answer and then ask them again. Repeat until correct response is given.)

"Right! We ANSWER them! Let's try it. I will pretend that I am (name of child), and I want you to play."

(Teacher assumes behavior patterns characteristic of child and models BEGIN. Repeat 6 times. Praise correct ANSWER responses. If necessary, correct by modeling desired ANSWER behaviors.)

"That was very good! Remember, when (name of child) BEGINS to play, you ANSWER him/her. What do you do when (name of child) BEGINS to play?"

(Wait for the children to answer. If they are right, praise them. If not, tell them the answer and then ask them again. Repeat until correct response is given.)

"Right! When (name of child) BEGINS to play, we ANSWER him/her!"

4. TAKING TURNS:

"When we are playing together with other children, it is very important that we keep the game going for a long time. We do that by TAKING TURNS. How do we keep the game going for a long time?"

(Wait for the children to answer. If they are right, praise them. If not, tell them the answer and then ask them again. Repeat until correct response is given.)

"That's right! We TAKE TURNS! Now let's practice TAKING TURNS."

(using selected materials, model desired behavior, starting with BEGIN.)

"First, I BEGIN the game: Would you like to play ___?" (Model appropriate behavior.)

"Now it is your TURN."

Wait until child has taken TURN)

"Now it is my TURN."

(Repeat sequence several times.)

"It is fun to TAKE TURNS! Now you try! I will pretend to be (name of child).

"What do you do first?"

Wait for children to respond. If they are right, praise. If not, tell them the answer and then ask them again. Repeat until correct.)

"That is right! First we BEGIN. And then what do we do to keep the game going for a long time?"

(Wait for the children to respond. Correct errors as above.)

"That's right! We TAKE TURNS. Now let's try it. Remember to BEGIN and then TAKE TURNS."

(Child practices desired behavior while teacher assumes behavior patterns characteristic of the special needs child. Continue until each has taken 3 or 4 TURNS, praise. Repeat sequence at least 2 more times.)

"Remember that many times children will not want to take their TURN, but you have to wait and remind them it is their TURN. Let's try it again."

(Repeat, this time delaying taking your TURN several times.)

"That was very nice! You waited until I took my TURN! Let's try it again."

(Repeat until children appear to be comfortable with procedures.)

5. REVIEW

"That was very nice playing! Now let's see if we can remember what we are supposed to do. The first thing we do is BEGIN to play. What is the first thing we do?
(Praise correct responses. Correct errors as outlined previously.)

"Good! When someone else wants to BEGIN to play, we should ANSWER them. What do we do when someone wants to BEGIN?"
(Praise correct responses. Correct errors as outlined previously.)

That's right! We answer them! The last thing we have to remember is to keep the game going, but TAKING TURNS. How do we keep the game going?"
(Praise correct responses. Correct errors as outlined previously.)

6. HELPING (OPTIONAL):

"Sometimes when we are playing with (name of child), s/he may need some HELP so that s/he can take a TURN. So let's remember that we can HELP (name of child) take a TURN. Let's try it. You BEGIN the game."
(Child practices desired behavior while teacher assumes behavior pattern of special needs child. Prompt appropriate HELPING behavior is necessary: i.e. "How could you HELP me (i.e., put puzzle piece in)?" Continue for 3–4 turns each.

"That was very nice HELPING. Let's try it again with a different toy/game."
(Repeat role playing, prompting HELPING behavior as necessary. Continue to try different activities until child has practiced several methods of HELPING child complete his/her turn.)

"That was very good! You HELPED me take my TURN!"

"Remember, when (name of child) has trouble taking a TURN, you can HELP him/her. What do you do when (name of child) has trouble taking a TURN?"
(Praise correct responses. Correct errors as outlined previously.)

It has generally been found that peer trainers become competent in the use of the target behaviors after going through the above procedures on three consecutive days. Once you believe they have mastered the skills, it is possible to implement the program with the special needs child.

PROGAM IMPLEMENTATION:

To ensure that the peer trainers maintain a high level of social initiations to the special needs child, it is necessary to directly PROMPT and REINFORCE their behavior. The following procedure has been used by Strain and his colleagues (1981):

1. At the appropriate time, inform the peer trainer that you would like him/her to try and get (name of child) to play.

2. Remind the peer trainer to BEGIN, ANSWER, TAKE TURNS and HELP (if necessary).

3. Ask the trainer how s/he will BEGIN to play. If the trainer does not know, suggest some possible activities.

4. Ask the child to explain how s/he will keep the activity going (TAKING TURNS).

5. Review strategies to be used if the child does not respond or if s/he needs help (HELPING, WAITING).

6. If the peer trainer does not initiate within 20 seconds of your prompt, or if the initiation fails and the peer does not try again, REPEAT steps #1 – 5.

7. Once the children have become engaged in an interaction, check back every minute or so to deliver reinforcement. As with the joint activity task, in most cases you should use "Quickie Praises" so as not to interrupt the ongoing social interaction. As well, more lengthy descriptive phrases can be used to clearly specify to the child exactly what he is being praised for. Reserve use of descriptive phrases until the social interaction has come to a natural pause. When using descriptive praise, try to use the language of the training sessions:

"That was a nice way to BEGIN that game!"

"I like the way you ANSWERED when (name of child) held up the ball!"

"You have been taking TURNS very nicely!"

8. As well, Strain and his colleagues have found it necessary to provide some type of tangible reward system for the peer trainer, since it is unlikely that they will be reinforced by the response of the special needs child alone. The following procedure is suggested:

   - Immediately following the play session, take the child aside and reinforce using descriptive phrases.
   - Award a star or other type of sticker on the trainer's chart.
   - At the end of the week, award a certificate that the trainer can take home.

GENERALIZATION AND MAINTENANCE

The procedures which have been outlined to you have been repeatedly demonstrated to increase the rate of social interaction between special needs children and their peers. However, it has also been seen that these high rates of interaction are NOT maintained outside the structures situations. Therefore, the objective of this final procedure is to use social reinforcement to establish and maintain social interactions in all types of situations and with a variety of different children.

PREPARATION

1. List names of special needs children and peer trainers on the chart provided. As well, leave a space for "others."

DAILY PROCEDURES

1. This procedure simply involves socially reinforcing any social interaction behaviors which are seen to occur between the special needs child and his/her peers in non-structured situations.

2. The same behaviors which were targeting in the peer initiation training are to be reinforced here:

   BEGIN
   ANSWER
   TAKING TURNS
   HELPING

3. Give social reinforcement to any occurence of the above behaviors. The reinforcement should be directed to both children involved in the interaction.

4. In most cases, it is desirable to use "Quickie Praises" so not to interrupt the ongoing

flow of the interaction. They can be accompanied by smiles, winks, and sometimes touches to make them more effective.

Descriptive phrases can be used during natural pauses in the interactions. Remember to clearly specify to the child exactly what behavior s/he is being praised for.

5. Record delivery of reinforcement on chart, and specify the children involved.

6. The following "target rates" for the delivery of social reinforcement have been suggested:

   Week 1 & 2: minimum of 5 reinforcers daily

   Week 3 & 4: minimum of 10 reinforcers daily

   Week 5 & 6: minimum of 15 reinforcers daily

OVERVIEW OF RESPONSIBILITIES

Week 1: Targeted Special Needs Child: _____

Day 1: Social Initiation Training
Joint Task Activities
Social reinforcement

Day 2: Same as Day 1

Day 3: Same as Day 1

Day 4: Social Initiation Sessions
Joint Task Activities
Social Reinforcement

Day 5: Same as Day 4

Week 3: Targeted Special Needs Child(ren):_____

Repeat as above.